Report on good practices of synthetic opioid preparedness, and needs and challenges in EU Member States

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Contents

Abbreviations

EMCDDA	European Monitoring Center for Drugs and Drug Addiction
EWS	Early Warning System
FA	Fentanyl analogues
FP	Focal Point
NPS	New Psychoactive Substances
SO	Synthetic Opioid
UNODC	United Nations Office on Drugs and Crime

Executive summary

Highly potent synthetic opioids like fentanyl and its derivatives are a growing concern in Europe. Since 2009, 57 new synthetic opioids have been detected on Europe's drug market — including eight reported for the first time in 2019. In 2019 only two of these opioids were fentanyl derivatives. This is the first time that more novel non-fentanyl synthetic opioids than fentanyl-derivatives were identified (EMCDDA, 2020a). New synthetic opioids pose a high risk of overdose to consumers, because they are often much more potent than 'traditional' opioids like heroin.

In the United States, the opioid epidemic has been called the "most consequential preventable public health problem." Drug overdoses are the leading cause of death among Americans under the age of fifty-five, and synthetic opioids (mainly fentanyl and its analogues) are responsible for most of these deaths. Also in Canada the numbers of synthetic opioid-related deaths are very high.

There is a growing concern that similar developments might occur in Europe. Fentanyl-related deaths have been increasing in some European countries in recent years (EMCDDA, 2019a). With Europe being a mosaic of different countries, cultures, and health systems, European countries can try to learn from each other's experiences. The project SO-PREP aims to strengthen European countries' preparedness and response to the threat and potential harm from potent synthetic opioids.

The aim of this report is to explore existing strategies and good practices of preparedness for dealing with a potential synthetic opioid crisis in Europe, and to identify needs and challenges and propose recommendations to strengthen EU Members States' synthetic opioid preparedness.

The first part of the report provides a brief overview of the synthetic opioid situation in the US and in Europe, followed by a description of various tools for monitoring synthetic opioids on the European level. This is based on review of available literature, research reports, and publications of the EMCDDA.

The second part of the report is based on a survey among the EMCDDA Reitox network of national focal points, which was carried out in 2020 as part of the SO-PREP project. The survey aimed at mapping existing strategies of synthetic opioid preparedness in different EU countries. The main finding from the survey is that most EU countries do not seem to have concrete plans for preparing for or responding to possible increases in synthetic opioids and related harms. However it should be noted that the responses were somewhat limited and not necessarily comprehensive.

The third part of the report presents examples of good practices on synthetic opioids preparedness as well as conclusions drawn from this report. With the rapidly changing drug markets and ever-growing number of new synthetic opioids, countries need to be vigilant and would benefit from developing multi-faceted and multi-disciplinary preparedness plans. The review of the literature shows that plenty of effective tools are available to enhance national SO preparedness.

PART 1 BACKGROUND INFORMATION

1. Synthetic opioids and preparedness in the USA

The United States (US) has experienced three waves of the opioid crisis over the past two decades: the first was mostly related to prescription painkillers, the second to heroin and the third to highly potent synthetic opioids such as fentanyl (CDC, 2019). Fatal overdoses involving synthetic opioids in the US have increased dramatically, from approximately 3,000 in 2013 to more than 30,000 in 2018. The spread of fentanyl and other synthetic opioids differs fundamentally from past drug epidemics, in that synthetic opioids drive up deaths rather than the number of users (Pardo et al., 2019).

As the opioid crisis worsens globally, the emergence of fentanyl, fentanyl analogs and novel synthetic opioids poses a serious threat to the population at large (Armenian et al., 2017). What are the implications for public health practice? Surveillance of trends in overdoses and the illicit drug supply is vital to track emerging threats. Additionally, a multisectoral response, including enhanced linkage to treatment, is critical to reduce and prevent opioid-related deaths (Wilson, Kariisa, Seth, Smith IV, Davis, 2020).

In the US, two key programs that identify and monitor emerging drug problems and trends are the National Forensic Laboratory Information System (NFLIS) and the National Drug Early Warning System (NDEWS). The NFLIS is a program of the US Drug Enforcement Agency (USDEA) Diversion Control Division that systematically collects drug identification results and associated information from drug encounters analyzed by federal, state and local forensic laboratories. The NDEWS monitors emerging illicit drug trends by analyzing social or news media and by site visits to local communities, as well as collaboration with the American Association of Poison Control Centers (Jannetto et al., 2019).

The US Department of Homeland Security is working with its partners to stop the flow of illicit opioids before they reach US borders. They also focus on dismantling and destroying transnational criminal organizations, which smuggle illicit drugs across borders and towns (US Department of Homeland Security, 2019).

The US Customs and Border Protection 'Strategy to Combat Opioids' has four strategic goals:

1. Enhance collaboration and information-sharing to combat illicit opioids.
2. Produce actionable intelligence on illicit opioids.
3. Target the opioid supply chain.
4. Protect personnel from exposure to opioids (US Customs and Border Protection. CBP Strategy to Combat Opioids, 2019).

Governments have the responsibility to fund data collection and monitor trends in drug use and drug market indicators. Pardo et al argue (2019) that at one time, the US had the world's best drug data infrastructure for supporting evidence-informed decision making. Now, it lags behind. In Europe, some countries regularly test wastewater to monitor and track drug consumption trends. The US has not made this a priority even if improving surveillance and monitoring trends and market indicators are crucial (Pardo et al., 2019).

One of the big challenges in preventing opioid-related deaths in the US is the fierce political resistance to implementation and scale-up of harm reduction services. The opioid epidemic is occurring in suburban and rural areas without harm reduction services, such as take-home naloxone programmes, drug consumption

rooms, drug testing, and opioid substitution treatment. There is a clear need for the expansion of these services to suburban and rural areas as well as in the cities all over the country (Des Jarlais, 2017).

2. Drug markets

It appears that most of the new fentanils coming into Europe and North America originate from China. Production in illicit laboratories in Europe has also been reported more recently.

Like other new substances, one of the reasons behind the increase in these fentanils is that they are not controlled under the United Nations drug control conventions. This means that in many countries they can be manufactured and traded relatively freely and openly — a situation which has been exploited by criminal groups using companies based in China to make these substances. China has been the principal source of the world's illicit fentanyl. Fentanils are typically shipped to Europe and North America by express mail services and courier services. They are sold as 'legal' replacements for illicit opioids on the surface web and the darknet. Unknown to users, they are sometimes also sold as heroin, fake medicines, or mixed with other illicit opioids (Evans-Brown and Sedefov, 2018).

Growing awareness about the individual and public health risks associated with fentanyl derivatives has resulted in actions that include increased restrictions in producer countries. The Chinese government banned the production and sale of fentanyl and many of its derivatives in May 2019. There are signs that the market adapted accordingly. In 2019, for the first time, more non-fentanyl synthetic opioids were reported to the EU Early Warning System than fentanyl-derivatives. Of the eight synthetic opioids detected for the first time in 2019, six were not fentanyl derivatives. However, they may present a similar threat to public health (EMCDDA, 2020a).

The new synthetic opioid 'isotonitazene' was recently detected as the first member of the new benzimidazole class of opioids. The benzimidazole class is etonitazene with an estimated potency of hundred to a thousand times that of morphine, thus making it a very potent opioid. Moreover, data indicates that this compound is being sold undiluted, which makes it very dangerous to use this substance (Blanckaert et al., 2020).

Synthetic opioids are easy to conceal and transport because tiny amounts produce a large number of doses. Another area of concern is the appearance of novel dosage forms, such as nasal sprays and e-liquids for vaping in electronic cigarettes, making fentanils easier to use and possibly more socially acceptable than injecting (EMCDDA, 2017; Tabarra, Soares, Rosado et al., 2019; Evans-Brown and Sedefov, 2018).

3. Synthetic opioids and preparedness in Europe

Over the last few years, there has been a sharp increase in the availability of new synthetic opioids, such as fentanyl and its derivatives, also in Europe. At the end of 2019 the European Monitoring Center for Drugs and Drug Addiction (EMCDDA) was monitoring around 790 new psychoactive substances (NPS), of which 57 were synthetic opioids (EMCDDA, 2020a). While synthetic opioids are not the largest group of NPS, they are generally associated with the highest risk of overdose of all NPS.

Opioids are the main driver of fatal overdoses in Europe. It is estimated that there were 1.3 million high-risk opioid users in the European Union in 2017. In 2017 there were 9461 overdose deaths in the 28 EU member states plus Norway and Turkey; 78% of these deaths involved opioids. Deaths associated with fentanyl and its analogs are probably underestimated, and outbreaks of deaths related to these substances have been reported (EMCDDA, 2019a).

Fentanyl and fentanyl analogs have evolved into a global public health threat. It is important to understand the analytical, clinical, and regulatory efforts needed to assist communities affected by the current

synthetic opioid epidemic and to prepare communities who are at risk of developing a synthetic opioid crisis. According to Jannetto et al. (2017), the EMCDDA has encountered several new fentanyl analogues (FAs) in the heroin supply. Counterfeit pharmaceuticals containing mixtures of fentanyl and FAs continue to be a poorly recognized global problem despite the WHO classifying several FAs as a serious threat to public health (Jannetto, Helander, Garg, Janis, Goldberger, Ketha, 2017).

In Europe, Council Decision 2005/387/JHA provides a 3-step legal framework of early warning, risk assessment and control measures that allow the European Union to rapidly detect, assess, and respond to public health threats caused by new substances. The EMCDDA is responsible for the first two steps in this system, namely operating an early warning system together with Europol (the EU police agency) and conducting risk assessments. The European Commission, European Parliament and Council of the European Union are responsible for control measures. In European countries, initial responses to the emergence of new psychoactive substances have been predominantly regulatory in nature, using legislative tools to reduce their supply (EMCDDA, 2017).

4. EMCCDA preparedness and response to a fast-moving drugs problem

The EMCDDA is an agency of the European Union (EU), which aims to provide factual, objective, reliable and comparable information on drugs and drug addiction. The EMCDDA, among other things, monitors drugs and emerging drug trends in Europe, provides information on best practices, and assesses the risk of NPS. The EMCDDA Reitox network of national focal points (the European information network on drugs and drug addiction) is a European reporting system that includes all 27 EU Member States, as well as Norway and Turkey, and incorporates multiple indicators alongside an early warning system (EWS) on NPS. While epidemiological information is based largely on registries, surveys and other routine data reported annually, the EWS collects case-based data on an ongoing basis (Mounteney, Griffiths, Sedefov, Noor, Vicente, Simon, 2016).

5. Early Warning Systems

An Early Warning System (EWS) on drugs is a multidisciplinary, inter-institutional network that enables information exchange among key actors, which are directly or indirectly involved in the field of drugs. An EWS aims to identify early on events of emerging drugs that pose a potential threat to public health. It assesses the risks that such drugs may pose and provides information to enable the design of effective responses. An EWS can help identify the emergence of new drug threats and changes on the drug market, such as new use patterns, unusual concentrations or contents such as toxic adulterants. Such events provide valuable information to an EWS network.

EWS are established in order to be able to address the rapidly changing availability and use of emerging drug threats. An EWS does not only support early detection of new substances but helps to disseminate information on new drugs, new drug use patterns and availability or market trends. Scientific evidence-based information of the changing drug market is essential in making informed policy decisions to address any changes and protect public health from possible health threats and drug related criminality (UNODC, 2020).

Many governments have started establishing EWS at a national level. In addition to that, there are cross-national EWS, including the EMCDDA's EWS at the European level, and the UN's EWS at a global level. Both the national systems and the European/global systems benefit from each other through enhanced information exchange.

UN Early Warning System

The UNODC developed the first international monitoring system on NPS under the umbrella of its Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme. The UNODC Early Warning

Advisory (EWA) on NPS is a voluntary online data submission system. It serves as a platform for sharing relevant information on NPS (available at: www.unodc. org/nps). Registered users can access specific information on NPS, including trend data, chemical and pharmacological data on individual substances, supporting documentation on laboratory analysis and on legislative responses. In 2018, the EWA was enhanced to incorporate toxicological data, including information on adverse health consequences from the use of NPS (available at: www.unodc.org/tox).

EU Early Warning System

The European EWS is a mechanism for the rapid detection and exchange of information on NPS, preceding and informing risk assessments and responses to the health and social threats of these drugs (EMCDDA, 2019d). The EWS aims to ensure that timely, accurate, and sufficiently detailed information on NPS reaches the public in a timely manner in order to allow them to take action to prevent or reduce the risk of harm (EMCDDA, 2019d).

Operated by the EMCDDA, in close cooperation with Europol, the European EWS is the first step in a three-step legal framework designed to allow the EU to rapidly detect, assess, and respond to health and social threats caused by NPS. The EWS aims to build, maintain, and strengthen situational awareness, preparedness, and response activities at national- and EU-level.

The EWS is composed of a multiagency and multidisciplinary network, which includes the EMCDDA, 29 national early warning systems (in 27 EU Member States, Turkey and Norway), Europol, and its law enforcement networks, the European Medicines Agency (EMA), the European Commission, and other partners. The EMCDDA, in cooperation with Europol, is responsible for collecting, collating, analyzing, assessing, and communicating the information reported by the network in order to provide them with any information required for the purposes of early warning and to allow the EMCDDA to draw up an initial report on an NPS that may pose health or social risks at EU level or a combined initial reports on several similar NPS.

Underpinning each of the national early warning systems, and, in turn, the European EWS, is the exchange of information on the chemical identification of NPS from forensic and toxicology laboratories. Principally, these laboratories handle casework related to seizures of NPS by law enforcement agencies (such as police, customs, and border forces) from poisonings (such as those from hospital emergency departments and medico-legal death investigations), and from samples collected from people who use NPS and from test-purchases, such as from online market places. These data may be supplemented by information from law enforcement agencies, health care systems, medicine agencies, key informants (such as users, owners and staff of clubs, and organizers of festivals), and open-source information (such as media reports and user discussion forums on the internet).

This approach allows the collection, assessment and rapid reporting of event-based information on the appearance of, and harms caused by, NPS found at the national level to the EMCDDA. These data are complemented by biannual reports, which include aggregated data on seizures by law enforcement and from poisonings. The organization and functioning of the national early warning systems is a national responsibility. While these systems have developed to meet national needs, they draw on a common format, guidelines and tools to report information to the EMCDDA (EMCCDA, 2019d).

INFO BOX

Early warning systems are critical to protect health:

Awareness ↑ Preparedness ↑ Responses↑ Harm ↓ (Michael Ewans-Brown, 2018.)

EWS can play a central role in situational awareness, preparedness and responses to health threats caused by NPS. Yet, like all public health interventions, strengthening these systems is a

continuous process, and work remains to be done. The recent developments in the NPS market serves to highlight the importance of continued investment in strong early warning systems at both national and EU level, as well as a more rapid risk assessment process at EU level, in order to help protect the health and security of people living in Europe. (Ewans-Brown & Sedefov, 2020:36.)

Information sources at the national level might include (EMCDDA, 2019):

- Law enforcement agencies and their laboratory networks responsible for the forensic analysis of seizures. These include police, specialized drug units, customs, border guards, prosecutors' offices, prisons, etc.
- Analytical toxicology laboratories that are responsible for clinical case work that involves the analysis of biological samples, particularly those related to serious adverse events such as poisoning cases presenting to hospital emergency departments.
- Forensic toxicology laboratories that are responsible for case work that involves the analysis of biological samples, particularly those related to medico-legal death investigations (such as post-mortem toxicology).
- Poison centres and related toxic surveillance systems.
- Health and care systems, including: hospital emergency departments, psychiatric departments, specialized and non-specialized treatment centres; outreach and street work agencies, drug prevention and harm reduction establishments, low-threshold services, drug helplines, general practitioners, etc.
- Drug checking programmes.
- National medicines regulatory authorities and the national pharmacovigilance systems.
- Universities and research establishments.
- Key informants, including: service users, organizers of mass gathering events (festivals, concerts, raves, etc.), owners and staff of clubs, etc.
- Online fora where people who use NPS share experiences.
- Scientific publications and grey literature; printed and electronic media.

6. Risk assessments of new psychoactive substances

Risk assessment of NPS supports decision-making on these novel substances at the EU level, as well as the national level.

The EMCDDA has published risk-assessment operating guidelines to provide a sound methodological and procedural basis for carrying out a risk assessment, including providing a conceptual framework for consideration of risk. The risk assessment process reviews the possible health and social risks of the substance and the implications of placing it under control. The concept of risk includes both the element of probability that some harm may occur (usually defined as 'risk') and the degree of seriousness of such a harm (usually defined as 'hazard'). An assessment of the risk–benefit ratio of an NPS is also needed. Various factors, including the question of whether the substance has legitimate uses, such as potential therapeutic benefits, industrial use or other economic value, may be taken into account. The assessment uses the data reported by the network and identified by the EMCDDA through its other monitoring systems.

Risk assessments are based on a broad range of available evidence, including recent unpublished data, the quality of which needs to be appraised. At the risk assessment stage, the prevalence of use of a new substance will usually be low, and the majority of the available information comes from forensic and toxicology laboratories, law enforcement agencies and anecdotal reports. Especially important are reports relating to non-fatal and fatal poisonings involving the substance under assessment. As data on the effects

of new substances is often extremely limited, part of the assessment involves an analysis of the possible nature and risks of the substance with reference to similar known substances, both controlled drugs and other substances. At the end of the risk assessment process a report on the substance is drawn up which contains an analysis of the information available, which includes chemistry and pharmacology, dependence producing potential and abuse liability, the health and social risks as well as the involvement of organised crime, and its production and distribution. Since 1997 and up until November 2020, the EMCDDA has conducted 33 risk assessments on NPS (EMCDDA, 2020c).

7. Methods of rapid data collection for detecting the use of synthetic opioids

There are many different data collection tools, from early warnings and public health alerts on new drugs, to risk assessments of drug-related infectious disease outbreaks or drug market threats, these innovative methods boost EMCDDA's preparedness and response. Analyses of data from **wastewater studies**, **hospital emergency departments, web surveys** and **drug-checking services** enhance understanding of drug use and markets in Europe and can provide valuable information for local interventions. **The monitoring of darknet markets** and **open source information** may also help identify emerging trends and threats, while Trendspotter studies bring together multiple sources for rapid assessments of topics of concern. While these methods have their limitations, they can improve awareness of patterns of drug use and sub-populations of users that are less well-observed (Figure 1).

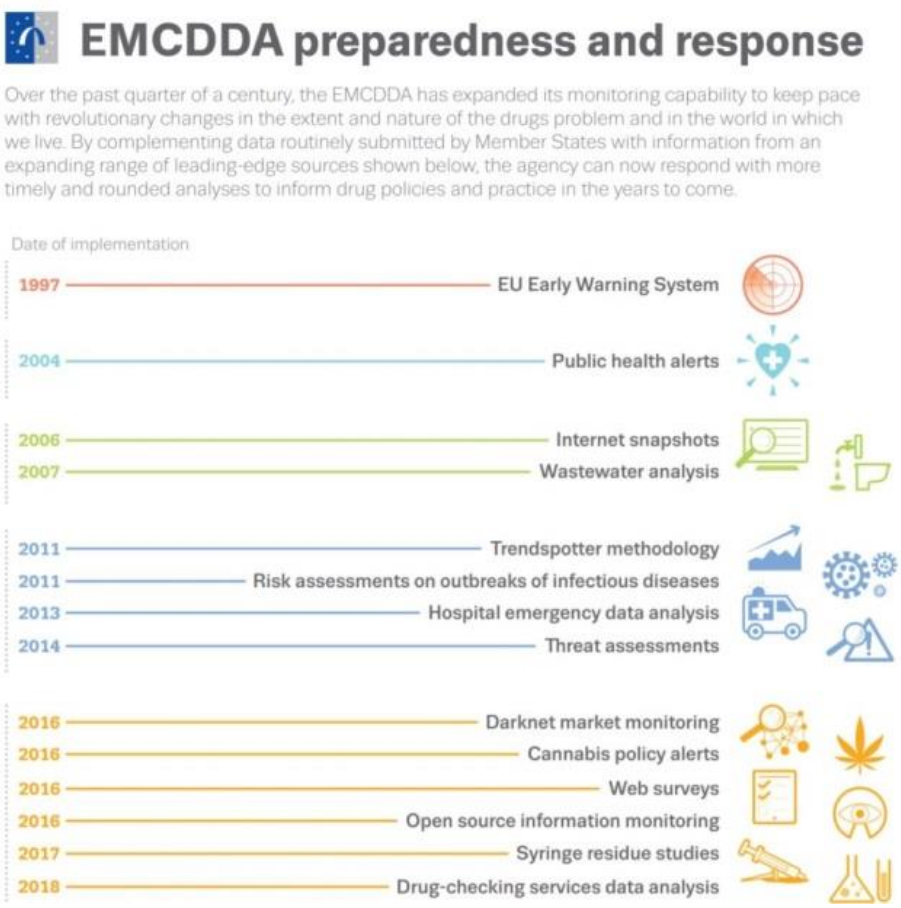

Figure 1. EMCDDA preparedness and response

The EMCCDA has continually strengthened and expanded its monitoring tools. Recently, the following new indicators have complemented earlier data sources:

1. Hospital emergency data
2. Preparedness strategies include identifying high-risk settings (like emergency departments) and individuals (high-risk opioid users) to facilitate linkage to appropriate services.
3. Syringe residue analysis (the analysis of injected substances from the residual content of used syringes)
4. Wastewater analysis in different European cities.
5. Drug checking services
6. Web surveys
7. Seizure and forensic data from law enforcement sources
8. Early warning and risk assessment supported by multidisciplinary data, including the chemical identification of new substances from forensic and toxicology laboratory networks.
9. Risk communication with authorities, professionals and users related to particularly harmful new substances, new formats of use, and emerging health and social threats. (EMCDDA, 2019; Bagley, Schoenberger, Waye, Walley, 2019.)

In the following part, we introduce some of the tools mentioned above in more detail.

7.1 Wastewater analysis

Monitoring illicit drug use is difficult because of the hidden and complex nature of drug using behaviours. 'Wastewater analysis', or 'wastewater-based epidemiology', holds promise for complementing established methods of drug use measurement. Wastewater analysis is a rapidly developing scientific discipline with the potential for monitoring real-time data on geographical and temporal trends in illicit drug use. Wastewater analysis offers an interesting and complementary data source for monitoring the quantities of illicit drugs used at the population level, but it also has several limitations. Wastewater analysis cannot provide information on prevalence and frequency of use, route of administration, the main classes of users or the purity of the drugs (EMCDDA, 2020d).

There are many uncertainties associated with wastewater analysis such as the behavior of the selected biomarkers in sewage, the reliability of interlaboratory analytical measurements, the different back-calculation methods used and the different approaches used to estimate the size of the population being tested (Castiglioni et al. 2016). Furthermore translating the total consumed amounts into the corresponding number of average doses is complicated as drugs can be taken by different routes and in amounts that vary widely, and purity levels fluctuate (Zuccato, Chianrando, Caglioni, Baganti and Fanelli, 2008). However, analysis methods are in the process of being improved (EMCDDA, 2020d).

As a method, wastewater analysis has moved from being an experimental technique to being a new method in the epidemiological toolkit. Its rapid ability to detect new trends can help target public health programs and policy initiatives at specific groups of people and the different drugs they are using (EMCDDA, 2020d), Seventeen countries participated in the 2019 wastewater monitoring campaign: Austria, Belgium, Cyprus, Czechia, Germany, Finland, France, Greece, Italy, Lithuania, Netherlands, Portugal, Spain, Slovakia, Slovenia, Sweden and Turkey(EMCDDA, 2019b).

7.2 Syringe residue analysis

Syringe residue analysis is a method for gathering information on the substances used by people who inject drugs. The method can provide local and timely information that can be used for city-level monitoring and interventions. It complements existing monitoring tools (such as surveillance data from drug treatment centers) but does not replace them. The method provides timely local information on injected substances and patterns of injection to health and social services, allowing for the prompt response to potentially dangerous substances.

The pilot study of the ESCAPE project (European Syringe Collection and Analysis Project Enterprise) collected syringes in 2017 from the bins of street automatic injection kit dispensers and at harm-reduction services in a network of six sentinel European cities: Amsterdam, Budapest, Glasgow, Helsinki, Lausanne and Paris. (EMCDDA, 2019e)

The ESCAPE approach provides local information that can be used for local interventions.

7.3 Early Warning System

By the end of December 2019, the EMCDDA was monitoring more than 790 NPS that appeared on Europe's drug market.

Since 2012, a total of 57 new synthetic opioids have been detected on Europe's drug markets, including eight for the first time in 2019. In 2019 only two of these opioids were fentanyl derivatives, which is a small proportion when compared with previous years. This means that fentanyl derivatives have been replaced by other new synthetic opioids. These new, non-fentanyl synthetic opioids may pose similar concerns in terms of their toxicity.

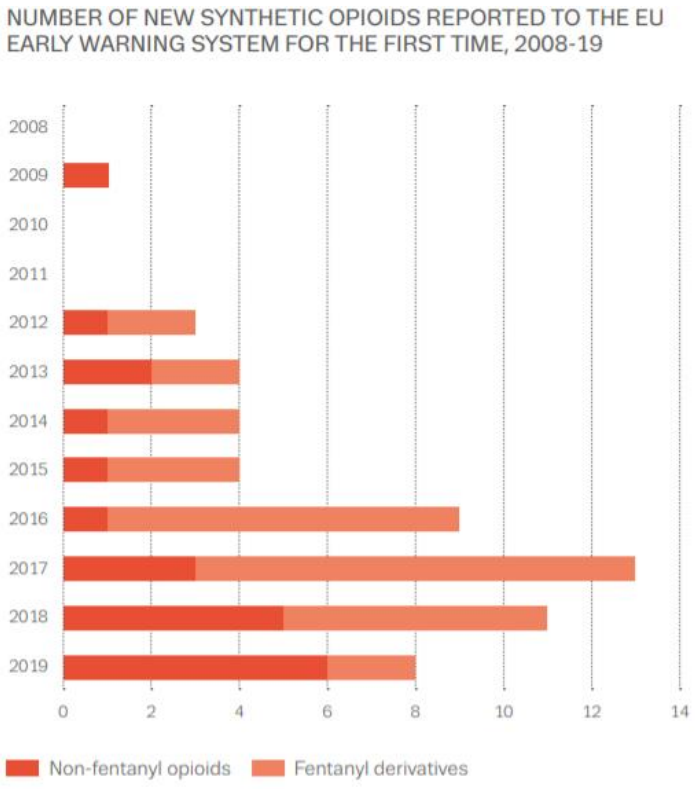

Figure 3: Number of NPS reported to the EU EWS 2000-2019 (EMCDDA, 2020a).

7.4 Forensic Institutes and relevant laboratories

Drug analysis laboratories are key to a functioning national, regional and international EWS due to the specific expertise, information and data they can generate (UNODC, 2020). Under the conditions of a globalized drug market, there is an increasing risk that novel potentially harmful NPS may spread to more countries and regions. This poses challenges for detecting, identifying and monitoring as well as controlling

these substances. Experts working at drug analysis laboratories are in a unique position to detect and identify both known and new chemical substances and changes in the drug markets (UNODC, 2020).

In order to track drug trends, what is needed is high-quality, real-time, national-level data on chemical composition, toxicological test data, drug toxicity and overdoses, as well as the analysis of seized materials by law enforcement. The identification of novel compounds circulating in the illicit market as well as locations experiencing increases in overdoses and deaths is critical to assessing the evolving opioid epidemic. Furthermore, rapid communication of these data should follow model systems developed for seized drugs to share information and overcome the analytical challenges in real time (Morrow, Ropero-Miller, Catlin, Winokur, 2018).

The rapid emergence of new compounds, primarily from Chinese suppliers, makes analytical detection difficult and newer techniques such as LC-HRMS invaluable in identifying novel opioids. As specific compounds are made illegal new analogs and novel synthetic opioids are emerging onto drug markets at a faster pace. Standard immunoassay screening in the clinical setting does not detect synthetic opioids. Additionally, very few clinical laboratories offer fentanyl testing in real time (Armenian et al., 2017).

7.5 Drug-related hospital emergency data

Every year in Europe, thousands of individuals suffer drug-related acute toxicity that requires hospital attendance. Hospital emergency data can provide an insight into acute drug-related harms and the public health impact of the use of drugs in Europe.

Drug-related acute toxicity presentations to 32 hospitals in 22 European countries are monitored by the European Drug Emergencies Network (Euro-DEN – Euro-DEN Plus; Figure 4). Data on drug-related presentations to emergency departments collected by a number of countries allow some national-level analysis. A broader, albeit non-representative, European picture is afforded by the work of the Euro-DEN Plus network (EMCDDA, 2020b). Findings from the Euro-DEN Plus project help to increase understanding of the drugs responsible for acute toxicity in Europe, whether they are illicit substances, misused prescription medicines or NPS.

FIGURE 1
Euro-DEN Plus centres by year of joining, 2013-18

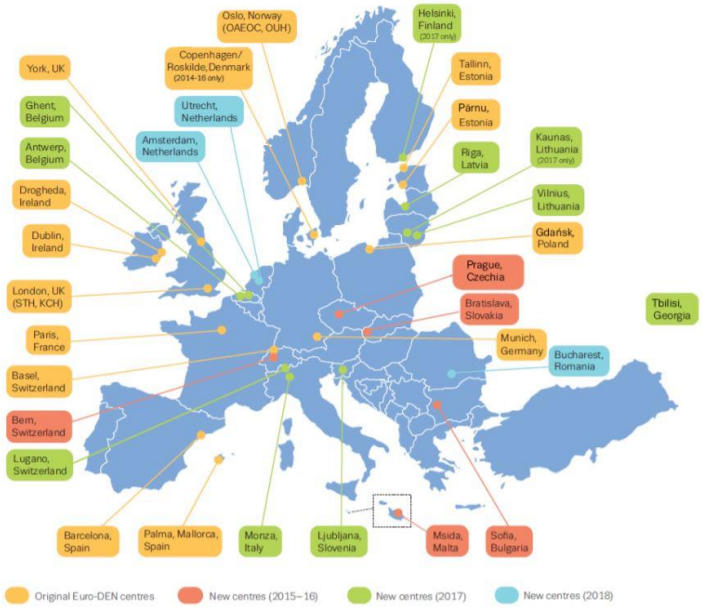

Figure 4: The European Drug Emergencies Network (EMCDDA, 2020b).

7.6 Rapid detection by police, customs and border control forces

Most NPS are identified for the first time following the chemical analysis of a seizure made by law enforcement. When a substance is suspected of being an NPS, the national EWS reports this to the EMCDDA. This includes chemical and analytical information, as well as the circumstances of the event. The submission of analytical data is also required; to a certain extent, such data are substitutes for analytical reference standards, which are often not available when an NPS is first detected (EMCCDA, 2019d).

Europe is confronted with a rapidly evolving drug market. Drugs purchased online can be transported across Europe and delivered to consumers by post and parcel services. This creates new challenges for law enforcement. Fentanyl's potency is such that a small quantity can be easily shipped directly to buyers halfway around the world for a modest fee (Pardo et al., 2019).

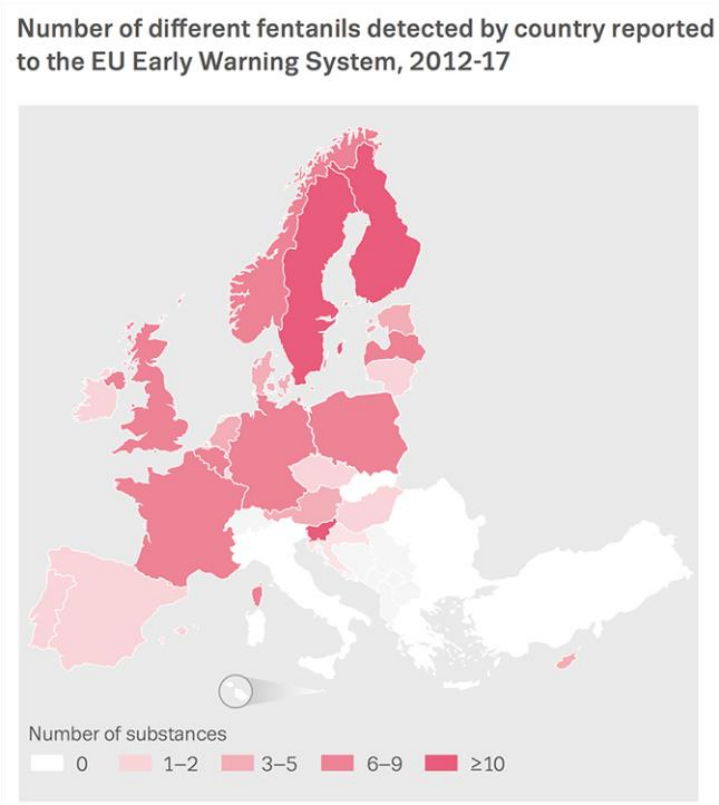

Figure 5: Number of different fentanils detected by country reported to the EU Early Warning System, 2017 (EMCDDA, 2018).

In terms of law enforcement responses, a better understanding of illicit fentanyl production sites and supply routes is required. In some cases, the dismantling of illicit production laboratories appears to have been effective in ending outbreaks of fentanyl use. This has also been the case in outbreaks in the US (Centers for Disease Control and Prevention, 2008). However, if production occurs in neighboring countries outside of the EU, for example in Russia, Belarus or the Ukraine, seizures are likely to be more limited and laboratories may lie outside Member States' jurisdiction. This will require increased cooperation with third countries, border controls and customs authorities (EU Action Against Drugs and Organised Crime, 2017).

Customs authorities are responsible for the control of goods and chemical products entering the European Community market. Customs laboratories are also facing the problem of identification of other type of chemicals sold on the "illicit market". As the first rampart in the control of chemicals moving across European borders, the role of customs laboratories is of fundamental importance not only from an economic point of view but also in the interest of public health and the protection and safety of EU citizens. The identification of new substances is a challenge for both forensic and customs laboratories,

predominantly due to the absence of scientific data and the lack of reference standards (EU Action Against Drugs and Organised Crime, 2017).

7.7 Monitoring of the Darknet and Clearweb

The spread of synthetic opioids has been aided by the internet. E-commerce and online shopping allow vendors to promote these substances online. Innovations that enhance online privacy (such as Bitcoin and anonymous browsing) aid online trade in contraband. These developments have expanded once-limited distribution networks, making synthetic opioids accessible to anyone with an internet connection and a mailing address, thereby connecting low-level wholesale dealers to international producers in ways that bypass traditional drug distribution networks. (Pardo et al., 2019.)

The internet has changed the drug markets. The darknet has emerged as a key platform to offer all types of illicit goods and services. Difficult to the police yet easy to access, the darknet provides an ideal environment for the distribution of all types of illicit commodities including drugs, firearms, counterfeit goods and fraudulent documents. In addition to the darknet, there are also other marketplaces where people can trade illegal substances, such as the clearnet and social media platforms like Snapchat, Facebook, and Instagram.

Law enforcement authorities expect this phenomenon to continue and online markets to expand and, in some case, possibly even replace the use of traditional distribution networks by some user demographics. While it is recognised that the scope of drug trade on the darknet is expanding and that darknet markets have the potential to displace (segments of) existing traditional drug markets in the EU, the overall interplay and relationship between the drugs trade via darknet markets and the traditional 'offline' drugs trade is still poorly understood (Europol, 2017).

PART 2 SURVEY FINDINGS

8. Findings from the SO-PREP survey: Existing methods, needs and challenges on synthetic opioid preparedness in EU countries

Drug situations – including drug supply, use, public health and social problems, drug policy, and responses – vary greatly from country to country. Also the country size, populations, political structures, health care and public health systems, and other resources are different in each country. EU Member States need to take these factors into consideration when designing and strengthening their national preparedness to new public health threats.

As part of the SO-PREP project, we conducted a survey to explore EU countries' preparedness strategies for a potential synthetic opioid crisis. The survey was sent to the EMCDDA Reitox network's national focal points (FPs) in July 2020, and responses were received until the end of September 2020. The questionnaire comprised 13 questions divided into four areas: monitoring systems, health systems, law enforcement preparedness, and rapid communication systems. In the survey, the term ‘synthetic opioids’ referred to any (semi-) synthetic opioids, such as fentanyl, fentanyl-analogues, prescription opioids, and new synthetic opioids (i.e. NPS-opioids).

Altogether 19 countries out of 29 (66%) responded to the questionnaire. This means that data are available only from about two-thirds of EU countries. The received data are also somewhat limited:

- Countries that provided only very limited answers were Norway, Luxembourg, Bulgaria, Sweden and Greece.
- Partly useful but not comprehensive information was provided by Germany, Czech Republic, and Ireland.
- More comprehensive responses came from the Netherlands, Finland, Cyprus, Lithuania, France, Italy, Portugal, Estonia, Croatia, Hungary and Poland.

8.1 Monitoring systems

The first objective of the survey was to explore methods, challenges and shortcomings of rapid data collection for detecting the prevalence and use of synthetic opioids, and to discuss how these challenges could be addressed. The main national data sources for synthetic opioids monitoring reported by the Reitox network Focal Points are:

- Toxicological/forensic laboratories
- Syringe residue analysis[1]
- Wastewater analysis[2]
- The Poison Information Centre
- Hospital emergency data (e.g. overdose-related emergency department visits)
- Law enforcement authorities (police, customs and border forces: police and customs drug seizures)
- Specialized services for people who use drugs
- Substance use testing (e.g. urine, blood, saliva, hair)
- Field research

Challenges in monitoring/diagnostic systems

There are technical differences between countries in terms of data coverage and detail. For example, in Finland, a forensic post-mortem is performed for all deaths related to illegal drugs. This means that the cause of death is known, as well as what possible intoxicants were detected in the deceased that might not be related to the cause of death. In other countries, such as the Netherlands, autopsies are not always carried out, meaning that cases of deaths due to illicit drugs are likely underreported.

There are also some challenges in coding practices in diagnoses without clear information about substances that were used. For example, carfentanyl could be coded under “T40.6
poisoning by, adverse effect of and underdosing of other and unspecified narcotics”, and thus synthetic opioids will be underestimated. Guidance for medical doctors is needed for developing more precise

[1] The following countries are involved in ESCAPE-project (syringe residue analysis): UK, Netherlands, France, Hungary and Finland. New countries have joined/are joining the European network of syringe drug residue research (Greece, Italy, Portugal, Estonia, Cyprus, Norway, Czech Republic, Latvia, Lithuania and Belgium). Methods used in Syringe drug residue analysis give detailed information on the prevalence and changes in drugs used intravenously, as well as mixed use - the simultaneous use of several different substances.

[2] Wastewater analysis as a monitoring tool is used in the following countries: Greece, Bulgaria, Netherlands, Czech Republic, Italy, Portugal, Estonia, Norway, Lithuania, France, Cyprus, Hungary, Luxembourg, Croatia, Sweden, Finland and Poland.

diagnostics of drug overdoses. Changes in coding practices under ICD-10, as well as structural availability of more specific codes, may help to address these deficiencies.

The provision of common diagnostic guidelines is important for drug-related diagnosing. Common guidelines and training for doctors on their use could be provided even by the Reitox focal points. Another challenge is the ability of laboratories to identify the substances.

There is also an obvious need for better and more detailed monitoring of the availability and use of NPS (including synthetic opioids) in different populations, including problematic drug users, as well as the general population.

8.2 Health systems preparedness

Most countries did not mention specific preparedness methods or operation models related to health systems preparedness. Some focal points mentioned the availability of naloxone[3] and the role professionals' training in enhancing the preparedness of health system.

In the Czech Republic, access to naloxone is highly restricted. Making it available for low-threshold services is almost impossible due to the medicine regulatory framework. As we know from other information sources (Tammi, Rigoni, Matičič, Schäffer, van der Gouwe, Schiffer, Gayo, Schatz, 2020), the same applies to many other European countries, too.

Portugal has trained health care professionals (doctors and nurses in, for example, emergency care and ambulances) on a technical level to deal with increases in the use of synthetic opioids. This included trainings in the use of specific guidelines for the injected form of naloxone.

Health systems preparedness in Finland is currently being developed. Emergency care is preparing for changes in the drug market by collecting emergency care reports from the most serious drug overdoses and by training and informing personnel on NPS, such as the 'designer' fentanyls in general and carfentanil in particular.

Estonia is one of the European countries where naloxone is widely available. Estonia also has take-home naloxone programs for harm reduction and drug treatment centers. Emergency services have been taught that fentanyl cases need more naloxone dosages than regular opioid overdose. Since 2018 the synthetic opioid cases have decreased a lot, and no new methods have been planned.

In France, the Health Ministry developed a roadmap (Le ministère des Solidarités et de la Santé, 2019a) on preventing and responding to overdoses 2019-2022 with 18 head-actions, subdivided into 46 items. (Le ministère des Solidarités et de la Santé, 2019b). One action is to improve and strengthen national and local early warning channels.

[3] It should be noted that the data from the SO-PREP survey is quite limited. For example more countries have naloxone and take home naloxone available other than the ones mentioned in this report. More information on the coverage is available at EMCDDA and C-EHRN harm reduction monitoring reports.

8.3 Law enforcement preparedness

Most countries have not been planning on implementing any new methods or operation models or protocols in the law enforcement sector to prepare for possible increases in synthetic opioids.

However, in the Netherlands, a special task force has been installed to tackle the issue of prescription opioids. It's a multidisciplinary group developing new guidelines and easy-to-use information for stakeholders such as GPs and pharmacists. Concerning to the black market and the Internet, a special subgroup of this task force has been established.

The use of synthetic opioids has not been a problem in Portugal. However, the Criminal Police, as the entity responsible for the national coordination of the fight against drug trafficking, has been raising awareness and informing the various security forces regarding the danger of these substances, in particular concerning fentanyl, and has also disseminated the necessary care for its handling and welcomes any training actions in this area.

Several countries reported having safety instructions and guidelines for handling synthetic opioids, fentanyl and its derivatives to protect officers.

One challenge mentioned for law enforcement services is that they would like to have the possibility to analyze the product seized in situ, with a more reliable result than Raman or IR technology.

In Finland, so far, neither fentanils nor other synthetic opioids have played a significant role in police work. The Finnish customs have found a number of fentanyl derivatives in recent years. However, the amounts have been relatively small. European trends in NPS use have often spread to Finland later than to other countries, and on a smaller scale.

In the Czech Republic the main shortcoming is that the law enforcement sector is not public health oriented.

In Sweden, the use of new synthetic opioids and fentanyl analogues has decreased drastically in the last two years (in 2018 and 2019). There was a decrease in deaths related to fentanyl analogues between 2017 and 2018. This was probably a consequence of the continuous efforts to classify fentanyl analogs as narcotics or goods dangerous to health as well as law enforcement initiatives, such as the prosecution of two fentanyl sellers for causing multiple deaths. There was also a lot of media attention on the dangers of synthetic opioids such as fentanyl analogues. Nevertheless, it is somewhat difficult to make a joint assessment for all synthetic opioids, as some synthetic opioids increased and others decreased.

Estonia has dealt with an opioid epidemic for nearly two decades. Law enforcement has established a good understanding of the synthetic opioid problem and the handling of the substance in seizure procedures and expertise.

The French National mission for the control of chemical precursors and the French observatory of counterfeit medicines (a sub-division of the national customs) currently hold an important role of facilitator/network organizer by hosting regular dedicated meetings on this subject and issuing special alerts by emails when necessary. Those alerts are accessible through a specific database. The French local point reported that they are not aware of any new implemented methods.

In Ireland, the main legislation controlling drugs is the Misuse of Drug Acts 1977 to 2019. Due to the evolving nature of the drug situation, the drug law has been frequently amended with several

supplementations, such as amendments, statutory instruments, and declarations, to include new NPS that have emerged on the Irish drug market.

8.4 Rapid communication systems for providing alerts on new drug trends

Most European countries have an EWS; however, their functionality varies and many could benefit from improvements. Although many national and European wide drug early warning systems (EWS) exist, none of these national systems are designed to identify, risk assess or respond to localized outbreaks of NPS or adulterated drug use. For this reason, more detailed planning is needed for coordinating, implementing, and reporting on data. The way that the information is made public should also be planned.

One of the challenges reported is that the national EWS do not provide alerts on new trends in drug use because this action is not included in its objectives. In many European countries, there is the awareness that synthetic opioids may become a bigger problem, but there has been no need yet for new information exchange methods. Of the countries responding to the survey, the following reported a local early warning system in place: The Netherlands, Czech Republic, Italy, Portugal, Estonia, Norway, Lithuania, Cyprus, Finland, Poland and France.

Poland is a noteworthy example. In case of identifying a potentially dangerous substance or an increase in the number of seizures of a potentially dangerous substance, all the network laboratories and heads of harm reduction programs receive the information on a potential threat. The data is also sent to Sanitary Inspection, which has a leading role in controlling NPS. In cases of a further increase in the risk of particular substances, the Ministry of Health is informed, and the information is published officially. In some cases, the decision is made to make information public at an earlier stage.

The information addressed to people who use drugs is mostly transferred with the help of harm reduction programs, which conduct their tasks directly in the population of drug users. This information might be case-based or more general in character. In Poland, 2018, a short leaflet was prepared with information on potential risk of synthetic opioids and recommendations on how to behave in case of drug poisoning and how to avoid poisoning.

If the use of synthetic opioids increases in Europe, rapid communication and exchange of information are crucial. Four countries (Bulgaria, Czech Republic, Lithuania, Hungary) taking part in the survey did not respond or said that they have no plans or they were not aware of new additional models or methods of preparedness if potent synthetic opioids were to appear on the market. Nevertheless, preparing for such an event was considered very important. However, some countries, such as Italy, for example, have already made such preparations. Italy has improved its own Rapid Alert System, including a collaborative network of experts from all the disciplinary areas envisaged (from forensic toxicology to hospital emergency services to territorial services for drug addiction). This network uses data derived from research and data from the Ministry of the Interior relating to seized substances as well as analysis of wastewater. The main challenge reported is that the territorial collaborative system will still need years before being fully operational. Italy also aims to develop methods of data integration to better understanding the drug situation.

France has planned to develop a mobile application that could be used to report on the emergence of new drugs, but it is still under preparation.

The use of synthetic opioids has not been a problem in Portugal. However, as the entity responsible for the national coordination of the fight against drug trafficking, the Criminal Police has been raising awareness and informing the various security forces regarding the danger of these substances, particularly with regard to fentanyl, and has disseminated the necessary care for its handling. Several countries reported that any training actions in this area are welcome.

In France, The French Monitoring Centre for Drugs and Drug Addiction (OFDT) publishes information if there is a national threat. The National Public Health Agency and the Public Health Ministry can post about such national threats as well. Often, as drug signals vanish quickly, this is done in the frame of the "drug signal process" to display alerts at the local level (city or region), through specialized services and notably with the support of NGOs using social networks to inform users quickly. NGOs can also take responsibility and lead such publications.

PART 3 GOOD PRACTICES AND CONCLUSIONS

9. Examples of good practices on synthetic opioid preparedness

In addition to information from the SO-PREP survey, two other examples of good practices on synthetic opioid preparedness at the national level were identified[4] . These good practices are from Public Health England and Sweden.

9.1 Public Health England

Public Health England (PHE) is an executive agency of the Department of Health and Social Care in the United Kingdom. Public Health England (PHE) exists to protect and improve the nation's health and wellbeing and reduce health inequalities.

It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health. PHE published in May 2018 guidance for local areas on planning to deal with fentanyl or another potent opioid.

According to PHE, local areas should:

- plan for how they will rapidly understand and assess the risk of any future threat, develop plans in partnership, and respond to the threat
- do everything they can now to review their arrangements and minimize the potential future impact of potent opioids (for example, through naloxone provision, treatment access and an effective local drug information system)

Many of the principles and activities could be applied to incidences of other unusually potent drugs. They will also be relevant to several settings such as prisons and other secure settings.

[4] The examples were mentioned by a national expert in an interview for another SO-PREP report.

9.1.1 Plan and prepare for a future threat

Local areas should work through existing mechanisms for emergency preparation, response and recovery to develop a plan that can be enacted quickly in the event of an incident. This may benefit from working with or through the local resilience forum and local health resilience partnership.

The plan should enable local partners to rapidly:

- understand the scale of the threat and assess the risk
- communicate the threat
- take actions to mitigate the threat

9.1.2 Understand the scale of the threat and assess the risk

Local areas will want to understand rapidly:

- where the problem is: particular neighborhoods, is it widespread or in neighboring authorities
- who is affected: which users and how many
- the severity of the problem: deaths or non-fatal overdoses or other reported harm
- the timing: is the threat imminent or occurring now

The relevant information might come from:

- the local drug information system (LDIS) and professional information network (PIN) or if there is no local PIN, directly from member organization such as the police and drug services
- drug testing of service users, drug samples seized or handed in, or post-mortem biological samples

9.1.3 Communicate the threat

The threat will need to be communicated to specialized drug treatment services and other services and to people who use drugs. Communications should cover: What is known about the problem, safer drug use messages and where to go for help at the local level.

9.1.4 Take actions to mitigate the threat

Assessing risk and impact will determine what measures are needed to address the problem. There should be a clear incident response plan developed locally that includes operational continuity and a risk assessment. Incident response planning is likely to include reviewing existing provisions and processes that could mitigate the threat and inform the consideration of what more can be done in each area.

9.1.5 The effectiveness of the local drug information system; Drug alerts

Media reports and other warnings regarding novel, potent, adulterated or contaminated drugs have increased over the last decade. However, these reports are often inaccurate, rarely confirmed by toxicology tests and may sometimes be counterproductive to public health messages intended to reduce drug-related harms and deaths. An agreed local drug information system (LDIS) that uses consistent and efficient processes for sharing and assessing information, and issuing warnings where needed, can help ensure high-quality; effective information rapidly reaches the right people.

PHE is working closely with the National Crime Agency, The Home Office, police, coroners, pathologists, toxicologists and laboratories to improve the timeliness and accuracy of the data received, particularly the data on deaths where fentanyl might be a factor. (Public Health England, Guidance for local areas on planning to deal with fentanyl or another potent opioid, 2018.)

9.2 Rise and decline in fentanyl and fentanyl analog related deaths in Sweden

The presence of fentanyl and its derivatives on the Swedish drug market since 2014 is considered to be among the most serious developments that have affected Sweden's drug-using population. Since 2015, these synthetic opioids have even surpassed heroin in the number of drug-related deaths. In order to tackle this issue, the Swedish authorities introduced a raft of measures using a multi-agency approach. These initiatives included prioritizing the investigation of fentanyl derivatives by the Public Health Agency of Sweden and proposals the need for regulation of new substances including fentanyl derivatives to be considered as goods dangerous to health or as narcotics. As a result, control measures were adopted on two occasions, in 2017 and in 2018 (The Swedish Police Authority, 2018).

The National Forensic Centre developed procedures for safe handling of the substances and a multidisciplinary team was established to reduce drug-related mortality by making naloxone available. Other measures included a new provision enabling the Public Health Agency of Sweden and the Medical Product Agency to purchase samples of substances under consideration for regulation in order to analyse and chemically identify those substances. In terms of the law enforcement response, the strategy included knowledge support, international and interagency cooperation, crime prevention measures, informing regulatory responses and initiating investigations. Such investigations mainly targeted the sale and distribution of fentanyl and derivatives online. The Swedish market differs from those of most other EU countries and those in North America, in that it is almost entirely online-based for synthetic opioids as opposed to "traditional" street-level sales. Epidemics of overdoses and deaths in countries other than Sweden typically occur locally and regionally, depending on where the street-level drug-sales take place (The Swedish Police Authority, 2018).

In Sweden, the sale of illicit fentanyl and its derivatives takes place almost exclusively on the internet. Based on police information gathered since 2014, an estimated 300 of the 370 deaths related to fentanyl or its derivatives in Sweden can be traced back to internet purchases. The limited number of Swedish vendors implies that a small number of vendors appear to be behind the availability of fentanyl and its derivatives. Such vendors became the focus of investigations. In a judgment in such a case in May 2018, two vendors who had sold fentanyl analogues were convicted to prison for causing another’s death by selling fentanyl analogues that caused the deaths of eight individuals.

The trade may move to darknet markets as a result of intensive repressive measures against open sale online. However, the Swedish police believe that such a move would limit public exposure by reducing accessibility to these substances (The Swedish Police Authority, 2018). According to the Swedish policy, the combination of the aforementioned measures seems to have been effective, as can be seen in the decreasing numbers of calls to the poison information center and cases of fentanyl and fentanyl-derivatives in post-mortem toxicology cases over the course of 2018.

Since February 2018, all major known actors have stopped trading in fentanyl analogs in Sweden, although a more restricted and covert trade is still there. There are a number of reason why the sale of fentanyl analogs has decreased so much: the Chinese government banned the production and sale of fentanyl and many of its derivates in May 2019 the aforementioned involuntary manslaughter conviction, and the police measures taken against drug-related criminal activities and actors. Of the limited number of actors, only a handful have sold major amounts of fentanyl analogs and only one of the actors has been active for more than two years. This means that only a few actors are behind a large number of deaths. Some of the actors have a long history of drug-related offenses.

In 2016 and 2017, the police carried out two nation-wide operations for preventive purposes against buyers of fentanyl analogues in Sweden. During these operations, the police conducted several house calls, which revealed the vast need for social interventions. In connection with the interventions, several individuals were offered access to provided substance abuse treatment.

The prevalence of fentanyl analogs in Sweden is dependent on international developments. The analogs originate mainly from China. There is a risk that the Swedish Police's active work in reducing the nationally based online-trade in fentanyl and their analogs will increase Swedish users' interest in buying from foreign websites instead. The ongoing development of the prevalence of fentanyl analogues in Sweden therefore needs to be assessed in relation to a possible change of the legal position, to the authorities' continued directed work, and to international developments. Examples of the latter are the measures that China will take to reduce the production in the country. Currently, the prevalence of fentanyl and fentanyl analogues constitutes a minor part of the total Swedish drug market. At the same time, there are indications of a still growing opioids market controlled by an increasing number of actors (The Swedish Police Authority, 2018).

Identified needs by The Swedish Police Authority (2018):

- Proactive classification procedures
- Increased inspection of the mail flow
- The need of tougher inspections of international drug trade
- The Swedish Chemicals Agency needs to prioritize fentanyl analogues and ensure that the analogues are entered into the list of the agency's monitored chemicals/substances
- Increased knowledge about the dangers associated with fentanyl analogues
- Reinforcement of the legislation covering counterfeit pharmaceutical products
- Increased knowledge about the dangers associated with fentanyl analogues

10. Conclusions and recommendations on synthetic opioid preparedness in European countries

Investing in enhanced synthetic opioid monitoring and response capacity in Europe is crucial, particularly against the backdrop of the drug overdose crises experienced by the United States and Canada. With the rapidly changing drug markets and ever-growing number of new synthetic opioids, countries need to be vigilant and would benefit from developing multi-faceted and multi-disciplinary preparedness plans. A review of the literature shows that plenty of effective tools are available to enhance national synthetic opioid preparedness.

On the basis of what has been presented in this report, we identified a set of conclusions and recommendations. The findings cover rapid information exchange, early warning systems, health systems preparedness, and law enforcement.

Rapid information exchange

1. Many European countries have shortcomings in the rapid exchange of information. The main challenge is to strengthen the cooperation, systematic data collection and information exchange across all relevant partners. There is a need for national databases and digital platforms for rapid data exchange. Moreover, the coordination, implementation, evaluation and reporting of data should be enhanced.

2. Reaching potential synthetic opioid users with the right information through the appropriate channels is a challenge. Certain groups of drug users are difficult to reach. There is a need for rapid information sharing among at-risk groups, such as in low-threshold services or 'housing first' units. One option could be digital interventions, such as the use of 'apps', for alerting people who use drugs about highly potent or potentially harmful substances, adulterants, substances sold under a different name, or fake medication.

3. Information should also be disseminated to the public and all relevant stakeholders, such as health care professionals, first responders, and law enforcement officers. Educating relevant individuals who may come in contact with people who use synthetic opioids is important to enhance response capacity at the individual level.

Early Warning Systems

4. Although national, European and even global Early Warning Systems (EWS) exist for drugs, these systems can benefit from further improvements. It is important that the systems are agile and responsive to the threats and not hindered by bureaucracy. Moreover, the right stakeholders who have first-hand information about new drugs, need to be able to contribute to the EWS. Furthermore, EWS should be designed to be able to respond to localized outbreaks of harmful or adulterated (synthetic) opioids.

5. As part of EWS, there is also a need to develop and strengthen real-time alert protocols within European countries to be able to communicate risks from hazardous synthetic opioids as soon as they are found in circulation. Depending on the severity and scope of the situation, the alerts may be local, regional or national, and their target audiences may include people who use drugs, health workers, harm reduction services, law enforcement and other relevant populations.

Health systems preparedness

6. Data from emergency services and hospitals can help detect the emergence of harmful substances on the drug market as well as increases in the use of harmful substances. Information on the use of synthetic opioids is generally not mentioned in emergency department or hospital databases. This should be addressed with the creation of new databases, as well as better coding practices such that specific substances can be entered in databases with specific codes.

7. Information from users and low-threshold services such as drug consumption rooms should be a vital part of the preparedness system. This can provide rapid on-site information about new or harmful synthetic opioids, or bad batches of drugs. Platforms for the collection of user-level information may be considered.

8. Given that the first wave of the opioid epidemic started with increased prescribing of opioids, there is also a clear need for continuous and systematic monitoring of the over-prescription of opioids, as well as the non-medical use of prescription opioids in European countries.

Law enforcement

9. One of the challenges in the law enforcement sector is the long waiting time for forensic expertise. Some forensic analyses of synthetic opioid samples take more than a month, which may be too long if there are local outbreaks of a substance.

10. There are handheld spectroscopy devices (using Raman or infrared technology) that are able to identify synthetic opioids on-site. This detection technology needs to be developed and taken into wider use for synthetic opioids.

11. Finally, there is a need to obtain more accurate information on drug-related deaths and their exact causes in order to be able to better understand and tackle overdose outbreaks. This includes strengthening the completeness and comparability of information available from forensic toxicology sources.

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Appendix: SO-PREP survey to the Reitox national focal points

Preparedness for a Synthetic Opioid crisis

In Europe, highly potent synthetic opioids (SOs) and related overdoses are a growing health threat. SO-PREP is a two-year European project focused on strengthening health systems' preparedness to timely and effectively respond to increases in the prevalence, use and harms of Synthetic Opioids.

The aim of SO-PREP is to contribute to the enhancement of the SO-related preparedness of the European Member States to effectively monitor and respond to SO-related health risks, hazards, and harms.

The objectives of the project are to:

- gain a better understanding of the current use and trends of Synthetic Opioids and related health needs in Europe
- strengthen national health systems' synthetic opioid preparedness
- develop an evidence-based toolkit for implementing enhanced SO monitoring and response capacity

SO-PREP is coordinated by the Trimbos Institute (NL) and the project partners are:

- Correlation—European Harm Reduction Network (NL)
- Estonian National Institute for Health Development (TAI)
- Finnish Institute for Health and Welfare (THL)
- Frankfurt University of Applied Sciences (DE)
- Ghent University (BE)

THL (Finnish institute for Health and Welfare) is collecting information of existing practices of national SO-PREPAREDNESS, EU-wide by conducting a questionnaire to Reitox network.

Preparedness for a Synthetic Opioid crisis

*The purpose of this questionnaire is to explore existing national strategies and models of **preparedness** for dealing with a potential synthetic opioid crisis in Europe.*

The term 'preparedness' refers to the ability of governments, professionals, and communities to anticipate and respond effectively to a potential or current spread of synthetic opioids in order to timely and effectively protect people from harm.

Please provide answers to the following questions with regard to your country.

1. PLEASE ENTER YOUR CONTACT INFORMATION:

First and Last name:

Email:

City:

Country:

2. What methods of rapid data collection for detecting the use of synthetic opioids (or for other drugs/substances) are currently being used in your country? These might include forensic institutes and relevant laboratories, causes of death, substance use testing (e.g. urine, blood, saliva, hair), driving under the influence, police and customs drug seizures, syringe residue analysis, wastewater analysis, hospital emergency data (e.g. overdose related emergency department visits), field-research, or others.

3. In your opinion, what kind of challenges or shortcomings are there in the rapid data collection methods mentioned above?

4. How could these challenges and shortcomings be addressed?

5. Are you currently planning on implementing additional methods to detect possible increases in synthetic opioid use?

6. What **preparedness methods/operation models or protocols** are currently being used in the law enforcement sector (e.g. Police, Customs, Border Forces, others) to prepare for possible increases in the

use of synthetic opioids (e.g. law enforcement guidelines, Intelligence programs)? Are you currently planning on implementing new methods?

7. What are some of the challenges or shortcomings in preparedness in the law enforcement sector? How could these challenges and shortcomings be addressed?

8. What preparedness methods/operation models are currently being used in health care services (e.g. emergency care, ambulance) to prepare and respond to possible increases in the use of synthetic opioids (e.g. staff training/briefing guides for first responders)? Are you currently planning on implementing new methods?

9. What are some of the challenges or shortcomings in preparedness in health care services? How could these challenges and shortcomings be addressed?

The following questions refer to the rapid flow of information that occurs when possible increases in the use of synthetic opioids are detected or when there are changes in the drug market.

10. Do you have any rapid communication systems and early warning systems place to provide alerts on new drug trends? If not, could you please provide details?

11. Who are the relevant partners and authorities involved in communications and warnings of potential increases in synthetic opioid use?

12. What kind of information and early warning channels are there to inform people who use drugs?

13. Are the new methods of information exchange being developed with regard to synthetic opioids?

14. What are challenges or shortcomings of current information exchange methods? How could these challenges and shortcomings be addressed?