

The Challenge of Responding to a More Globally Joined-up, Dynamic, and Innovative Drug Market: Reflections from the EMCDDA's 2018 Analysis of the European Drug Situation

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Each year in the European Drug Report (EDR), the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) produces an overview of trends and developments in the drug situation. Founded in 1993, and based in Lisbon, Portugal, since 1995, the EMCDDA is the designated reference point for drug-related information in the European Union (EU). It works with all EU member states as well as, by special agreement, with Norway and Turkey. Data are collected annually for a set of standardised indicators that cover both drug demand and drug supply measures. In addition, the EMCDDA, together with Europol, is responsible for the EU's early warning system on new psychoactive substances (NPS). This

three-step mechanism allows for the sharing of information on non-controlled psychoactive substances appearing in Europe that may pose a risk to health similar to drugs controlled under the United Nations Conventions. Should it be merited, information provided to the early warning system may trigger a risk assessment, which is conducted by the EMCDDA's Scientific Committee. This exercise can potentially lead to a decision for fast track control measures being introduced across the EU. In this editorial, we consider how a more globally joined-up, dynamic and innovative drug market has impacted on drug availability and on drug use problems. In doing so, we build on the commentary and analysis of the

EDR 2018, which was launched in Brussels on June 7, 2018 (1).

An analysis of drug trends in 2018 first and foremost shows that, by historical standards, the available data suggest that overall drug availability is high and in certain areas appears to be increasing (1,2). The impact of this development can be seen in some indicators of harm; however, the situation in relation to patterns of use is less clear. In particular, the extent to which supply is meeting existing demand or creating new consumers is difficult to judge and probably varies between drug types.

Developments in European countries are both influenced by global drug trends and impact on them. With this in mind, an important contextual factor for any European analysis is constituted by developments in global drug production and trafficking. In June 2018, the United Nations Office on Drugs and Crime (UNODC) released the new edition of the World Drug Report (2). Among the interesting findings contained in this document was that recently a significant increase in both opium and coca production has been reported. How this development impacts on Europe merits scrutiny. The current situation in respect to cocaine and heroin use appears to suggest that increases in availability are reflected in greater use of both drugs but not necessarily in a measurable increase in the number of new users.

The estimated minimum retail value of the EU heroin market was around 6.8 billion euros or 138 tonnes in 2013. There has been a slight long-term decline in average prices while purity appears to have increased in the last few years to be around the same high level found around 2010. Nevertheless, overall use still appears to remain stable and rates of initiation into use appear to be low by historical standards. In Europe, the most commonly used illicit opioid is heroin, and in 2016 there were an estimated 1.3 million high-risk opioid users in Europe. According to available trend data, the number of first-time heroin clients entering drug treatment more than halved from a peak in 2007 to a low point in 2013, before stabilising in recent years, with 28,000 in 2016. Heroin is associated with the majority of drug overdoses in Europe – and

the most recent data suggests an increase in heroin-related deaths. A reported number of 9138 overdose deaths, mainly related to heroin and other opioids, are estimated to have occurred in Europe in 2016 (28 EU member countries plus Turkey and Norway). The EU-only estimate is 7929 deaths. However, this trend is most apparent in older age cohorts and probably indicates the negative impact of increased availability on one particular aging and increasingly more vulnerable cohort. Deaths among the 50+ age groups increased by 55% overall, compared with a 25% increase in deaths among those aged 30-49. Thus while there are some signs of increased availability, this has not, at least until now, been reflected in any evidence for an increase in new demand for this drug. A small increase can be seen in new treatment attendees at specialist centers, but this is probably explained by changes to the reporting system occurring in some countries. Overall, the treatment cohort appears to be an aging one.

For cocaine, a number of indicators are now trending upwards, showing signs of increased availability, and again, from a number of sources there is evidence of increased use. However, while we might suspect that this data may in part reflect a greater interest in the drug, the available evidence does not allow to make an overall conclusion with any certainty that we are seeing a significant increase in new users as opposed to simply an increased use by those who have already had experience with the drug. In part this is because national survey data performs poorly as an indicator of recent trends at the European level. The use, and limitations, of complementary methods such as wastewater-based estimates, which can provide a closer real-time window on consumption trends for some substances, is discussed in more detail below. A recent study of drug residues in municipal wastewater revealed that between 2015 and 2017 there was an increase in cocaine residues in 26 of the 31 cities with data for this period. Data from the 18 general population surveys conducted since 2015 on the number of last-year users of cocaine suggest a stable situation in most countries, with 14 surveys showing a stable trend, three reporting a larger and one a smaller estimate.

Both for heroin and cocaine, in addition to the reported increase in production in the source countries, seizure data indicate some recent changes in the production chain that may have important implications for the future. The importation of large volumes of the drug concealed in shipping containers is still being observed. Around 98000 seizures of cocaine were reported in the EU in 2016 amounting to 70.9 tons. Developments in this area also serve to illustrate the fact that modern drug production patterns are more complex than had often been the case historically with more sophisticated methods used to avoid interception by drug control authorities. In particular, secondary processing and extraction of cocaine from 'carrier materials' continues to be observed in Europe. Also, indicating a change in tactics, the seizure of 79 kilograms of coca paste in Spain and a further 7 kilograms in Italy suggests the existence of illicit laboratories producing cocaine hydrochloride in Europe. For heroin, a new development is that laboratories converting morphine to heroin have now been detected and dismantled in a number of European countries. A likely driver of this change is the greater availability and considerably lower cost of acetic anhydride, a key precursor chemical for heroin production in Europe. This comes at a time when opium poppy harvests are growing and precursor control measures have greatly raised the cost of the chemical in and around Afghanistan. This development serves to illustrate not only the globally joined-up nature of modern drug production networks, but also the need to frame drug control responses, such as precursor controls, within a more global perspective if they are to be effective.

Traditionally, Europe has often been described as a consumer region for drugs produced elsewhere, and this dichotomy has also often characterized the international policy debate in this area. This simple view no longer holds true, and it is increasingly imperative to recognize that serious and often growing drug consumer-related problems exist in low and middle income countries. At the same time, drug production of some sort is now a global phenomenon. For example, for some synthetic stimulant drugs like

MDMA, Europe is a major producer, exporting products and expertise to other parts of the world. Similarly, for cannabis, European production has to some extent displaced importation and now appears to have impacted even on the business models of external producers. One consequence can be seen in the increased potency of the cannabis resin now being trafficked into Europe as higher-potency strains of the plant appear to be grown – presumably to compete with the high potency of cannabis produced domestically within the EU. The potency for both forms increased until 2013, since when herbal cannabis potency has stabilized, whereas resin potency has continued to increase. Similarly, while European and international efforts to restrict the production and availability of NPS now appear to have some impact on their commercial availability, there have also been some reports of the manufacture of these substances within the European borders.

Recognizing how drug production has become more globally complex and how those producing and trafficking drugs are quick to exploit developments in information technology and in the infrastructure supporting international trade is becoming ever more important. These kinds of developments have the potential to impact rapidly on the kinds of drug problems we may face in the future. Consequently, improving our monitoring and analyzing market dynamics is a critical requirement for being better prepared to respond effectively to future threats. An example can be seen in North America, where in a very short period of time fentanyl derivatives have appeared on the market and rapidly replaced heroin and medicinal opioids. The appearance of fentanyl derivatives in Europe is addressed later in this editorial.

The sale of drugs on the internet represents another good example of how change can occur rapidly, posing challenges for existing policy and response models and for our current drug monitoring approaches. A recent joint EMCDDA-Europol report explored the role European suppliers and consumers play in this global market. The study, *Drugs and the Darknet*, identified over 100 global darknet markets where two-thirds of purchases were drug-related. EU suppliers were

estimated to be responsible for nearly half of 'darknet' drug sales between 2011 and 2015. Online sales are currently small in relation to the overall illicit drug market, but they appear to be growing. While attention is often focused on the darknet, it is also apparent that for NPS and misused medicines, social media and the surface web may be equally important. Of concern here is the emergence of new benzodiazepine-related substances. The EMCDDA currently monitors 23 new benzodiazepines, most of which have been reported to the EU Early Warning System in the last four years, with three new detections in 2017. In 2016, over half a million tablets containing new benzodiazepines, or similar substances, were seized, some two-thirds up on the number seized in 2015. These substances are not licensed medicines in the E, and very little is known about their toxicology; however, risks are likely to increase when they are used alongside illicit drugs or alcohol. The availability of both established and new benzodiazepines on the illicit drugs market appears to be increasing in some countries, and these substances are known to play an important but often overlooked role in opioid overdose deaths. Recent signs that use of these substances might be growing among young people are particularly worrying.

As noted earlier, rising cocaine production in Latin America now appears to be becoming more visible on the European market. However, our current set of monitoring tools is often slow in detecting important changes in drug consumption patterns. A relatively new method, wastewater-based epidemiology (WBE), may have some utility here and has provided an early warning for the increased availability and use of cocaine which is now also reflected in other data sources.

WBE is a novel approach to estimating drug use at the population level by analyzing wastewater samples for metabolic products, or biomarkers, excreted by humans after they have consumed drugs (3). The use of WBE to estimate illicit drug use in a community was first attempted in Italy by Zuccato et al. (4) and has subsequently been implemented in many other countries (5-7). WBE involves sampling a source of wastewater, such as a sewage influent to a wastewater

treatment plant (4). From this it is possible to identify and quantify specific biomarkers and then back-calculate the amount of the corresponding illicit drugs that has been consumed by the population served by the wastewater treatment plant. Researchers have successfully used WBE to track temporal and spatial trends in drug use at different geographic scales, to provide timely estimates of drug use, to identify changes in drug habits, and to quantify the use of new substances. The method is particularly useful for monitoring hidden behavior like drug use because it allows researchers to avoid the problems posed by self-reported data, reduces reporting delays, and is a relatively cheap approach compared to some more established methods. With the rise in availability of NPS, and generally greater importance of synthetic drugs, self-report data has become even more problematic as drug users may not know or be misinformed in respect to the drug they have consumed. WBE is helpful here, providing an objective measure, as it is not dependent on the subjects' perception of what substances they are using. It represents therefore a new item in the epidemiological toolkit for exploring trends in drug consumption. Like many other methods wastewater-based approach has its limitations. Currently the approach is only really well established for certain substances like cocaine. With other substances, the lack of a suitable metabolite does not allow human consumption to be separated from drugs that may sometimes be dumped into the environment, such as residues from illicit production sites. Problems also clearly exist where there is significant medical or veterinarian use of a controlled substance, as this will also result in its presence, or the presence of its metabolites, in the water system. Additionally, this technique only really allows for consumption to be estimated at the population level. This means that an increase in potency may result in an increase in observed drug use at the population level even if the number of consumers remains constant.

This is the case for cocaine. While cocaine prices have remained stable, drug purity is currently at the highest level for over a decade in Europe. Historically, most cocaine entering Europe has come through the

Iberian Peninsula. Recent large seizures elsewhere suggest that the relative importance of this route may have declined slightly, with cocaine now being increasingly also trafficked into Europe through large container ports. In this respect, it is noteworthy that in 2016, with seizures of around 30 tons of cocaine or 43% of the estimated EU total in 2016, Belgium displaced Spain (15.6 tons) as the country reporting the highest annual seizures of the drug. However, in 2017 large seizures were also reported in the Iberian Peninsula, thus the overall picture appears to be simply one of increasing supply through various routes. UNODC also reports increased cocaine use in parts of Asia and Australia, suggesting that Europe may also possibly be a transit point for cocaine shipped to other parts of the world. If this were the case, it would support the comments made earlier on the more dynamic and globally joined-up drug market that we are now observing.

Overall, the public health implications of increased cocaine use are difficult to measure, as its role in both acute problems and long-term health harms is difficult to monitor and problems may often go unrecognized or unrecorded. That said, we would still expect to see some increase in observed problems if prevalence of use and/or particularly high-risk patterns of use increases. One of the recent signs that this may be happening is an increase in the observed number of first-time admissions to specialized treatment related to cocaine, although these have still not returned to the relatively high levels last seen a decade or so ago. Between 2014 and 2016, the number of cocaine first-time treatment entrants increased by one fifth and there were 30,300 first-time treatment entrants in 2016. Troublingly, while still rare, there is also some increase in the number of countries reporting crack cocaine use and there were 8,300 clients or 2% of all drug clients in 2016 entering treatment for primary crack cocaine use.

The importance of being prepared for new challenges in a more globally complex drug market is particularly evident in the area of NPS. These substances continue to present a rapidly evolving challenge to drug policy. Overall, some 670 substances

have been observed in Europe. Some appear then rapidly disappear – but around 400 NPS are detected annually and the list of new substances appearing on the drug market continues to grow, with about one additional NPS being reported every week. Although the number of new substances making their debut is down from the peak reached in 2015, the negative public health impact of the use of these drugs remains high. Moreover, while these drugs initially appeared to be marketed to young people as legal alternatives to controlled substances, they increasingly appear to be targeted at more problematic chronic drug users in prisons.

The appearance in Europe of synthetic opioids and synthetic cannabinoids linked to deaths and acute intoxications led to the EMCDDA assessing nine substances for their risks to public health in 2017. The increasing appearance of opioids like fentanyl is a relatively recent development in the NPS situation. These substances were available in a number of novel forms including nasal sprays. They were also sometimes found mixed with other drugs, such as heroin, cocaine or fake medicines, with the consequence that users may often have been unaware of what they were consuming. The emergence of these potent drugs, often purchased on the internet, raises significant challenges for both health and law enforcement services. Such potent synthetic substances are easy to transport and conceal, with small volumes often representing many hundreds of thousands of potential street doses. These substances, some many times more potent than heroin, accounted for over 70% of the estimated 1,600 seizures of new synthetic opioids reported in 2016. From a health perspective, they add to the already considerable burden attributed to other opioid deaths. In the United States, fentanyl derivatives now make a major contribution to the current opioid crisis, and over a short period of time they have become the substances most associated with overdose mortality. In Europe, we are not facing a problem of the same scale, but nonetheless reports to the EMCDDA of deaths and non-fatal overdoses associated with fentanyl and non-controlled fentanyl derivatives are increasing.

Reports of health harms, such as deaths and acute intoxications, linked to new synthetic cannabinoids resulted in four risk assessments in 2017. Synthetic cannabinoids were first marketed as legal alternatives to natural cannabis products, but they are different in many ways. Initially, these substances were associated more with recreational use, but are now being used problematically by more marginalized social groups, such as the homeless. Additionally, in a number of countries concern is growing about the impact synthetic cannabis use is having within the prison system on both prisoner health and security. This is being driven by the relative ease with which these substances can be smuggled into prisons and the challenges that exist in detecting their use. Synthetic cannabinoids can for example be sprayed on to paper and their potency means that a single letter can represent a large number of potential individual doses. This problem has emerged only recently and again provides us with an example how innovation in the drug market can take us by surprise and challenge existing approaches to drug control. In a new EMCDDA study, NPS in Prison, this issue was identified in 21 EU countries, but may go unobserved elsewhere.

It is not just in the areas of NPS and other synthetic drugs that we are seeing innovation. Cannabis remains the most widely used illicit drug in Europe. The drug's prominence is evident from its place in seizures, drug law offences, prevalence estimates, and new treatment demands. It is estimated that just over 23% of adults in the EU have ever used cannabis, and over 17 million young adults (aged 15-34 years) use it annually. Cannabis use is therefore not only long established in Europe but also far more commonly reported than the use of other illicit drugs. However, we have seen recent changes in this area, too. As noted earlier, over the last decade the domestic production of cannabis within the EU has gained in importance and displaced the use of imported cannabis resin in many countries, as indicated by seizure data, where the number of

herbal seizures (420,000) now exceeds those for cannabis resin (317,000). This change has been accompanied by an increase in potency for both forms of the drug. In the future, we may see more innovation in this area resulting from interactions with other global markets. Developments in the Americas are likely to be important here. These include the legalization of the drug in some jurisdictions, which has led to the rapid development of a commercial cannabis market. This is now resulting in increasing innovation in the forms of the drug available and delivery systems for its consumption. These include high-potency strains of cannabis, e-liquids, and edible products. The connectivity that now exists both in terms of the diffusion of ideas and the ability to source material and equipment through online markets must make us concerned that some of these developments may impact on patterns of cannabis use in Europe in the coming years, independently from any policy changes that may occur in the regulation of these substances.

In conclusion, the analysis of drug trends in Europe in 2018 illustrates that in both understanding and responding to drug problems it is increasingly important to be able to place the European data in a more international context. Many of the drivers impacting on the patterns of drug use have their roots in developments occurring elsewhere. We live in a more connected world in which the old perspectives of consumer, transit, and producer countries are no longer sufficient or helpful. This is also why increasing monitoring capacity in countries where it is currently lacking is so important because developments in these countries interact with, and impact on, the drug problems we face in our own countries. Therefore, a message running through this year's EDR is the need explicitly to recognize that to understand the current and future challenges that drug use poses to Europe's health and security policy agenda, it is also necessary to understand the global dimensions of this issue.

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