New psychoactive substances, drug injecting and sex in recreational settings – increased risk of HIV and HCV and opportunities for prevention

Lucas Wiessing[1], Cinta Folch[2,3]

[1]European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Lisbon, Portugal . [2]Centre d'Estudis Epidemiològics sobre les Infeccions de Transmissió Sexual i Sida de Catalunya (CEEISCAT), Agència de Salut Pública de Catalunya (ASPC), Badalona, Spain. [3]CIBER Epidemiología y Salud Pública (CIBERESP), Spain.

"New psychoactive substances" (NPS) and other recreational drugs have rapidly become widely available, with significant implications for public health[1-3]. Young people may be increasingly experimenting with drugs of unknown composition, potency and effects, with the risk of adverse consequences such as overdose or even death[4]. In some countries a surge in NPS use has led to increases in injecting, opening up the possibility for renewed spread of blood-borne diseases such as HIV and hepatitis C virus (HCV)[1,5,6]. NPS and other recreational drugs are broadening the range of options for drug use and appear to be used in more diverse settings. This may have important consequences for specific populations at a higher risk for HIV and HCV, such as people who inject drugs (PWID) or men who have sex with men (MSM)[1,7].

NPS are receiving much attention lately due to their increasing proliferation and non-controlled legal status, however, for public health purposes it is useful to consider them in the context of the full spectrum of substances that may be used in a risky manner—and often in conjunction. This comprises also the (overlapping category of) "recreational drugs" or "club drugs" (e.g. ecstasy type stimulants, hallucinogens, synthetic cannabinoids, some sedatives e.g. GHB) as well as the more "classical drugs" (heroin and other opioids, stimulants including cocaine and (meth-) amphetamines, sedatives including prescription drugs such as benzodiazepines) and cannabis, any of these often being used together with alcohol or tobacco. At the same time, the often easy and rapidly growing access to NPS over the Internet may be changing the drug use landscape in ways that merit specific consideration[7,8]. In this contribution we aim to give a brief overview of the public health risks of NPS use among people who use drugs (including PWID and MSM, and with a specific focus on HIV and HCV), complementing and drawing on a separate contribution on MSM by Coll *et al*. in the same issue of *Enfermedades Emergentes*[7].

NPS include synthetic and naturally occurring substances that are used for their psychoactive effects, that are not controlled under international law, are often produced with the intention of mimicking the effects of controlled substances and may pose a public health threat[1,2]. The definition of NPS is relatively fluid, especially as any NPS once controlled no longer fits the category. Large numbers of NPS continue to appear on the market, however many of these drugs disappear again rapidly and of most there is no information to what extent they are actually being used, nor what the associated risks are[1]. Seizures of NPS in Europe include primarily synthetic cannabinoids and stimulants, such as many cathinones (e.g. mephedrone), but NPS also include entactogens that stimulate serotonine release (e.g. MDMA-like cathinones) and hallucinogens (e.g. ketamine)[1,9]. Although the use of NPS mostly produces minor or moderate poisonings, serious complications do occur[1,9].

The link between NPS or recreational drugs and injecting is less obvious in most countries, however with significant exceptions. In some countries an important uptake of NPS has been reported among people who use drugs heavily and PWID, and this has been associated with outbreaks of HIV (Ireland, Romania) and HCV (Hungary)[5,6,10-17]. NPS such as synthetic cathinones have been related to increased injecting frequency and risk behaviours, leading to a potential increased risk of disease transmis-

Correspondencia: Lucas Wiessing
E-mail: Lucas.Wiessing@emcdda.europa.eu

sion when these drugs become more prevalent[5,18]. The increased risk associated with stimulant use by PWID is not new, early reports exist of the strongly increased risk of HIV, HCV infection and/or syringe sharing among heroin users who combine heroin with cocaine ("speedball") and this was again a risk factor in the recent Greek HIV outbreak among PWID[14,19-23]. At the same time the injection of stimulants may not always be associated with increased risk of HIV infection, as some countries with high levels of (exclusive) methamphetamine injection (e.g. Slovak Republic, Czech Republic) have maintained very low levels of HIV among PWID, while at global level this association remains unclear[1,24].

NPS and recreational drug use are increasing among new groups of drug users in new settings. A large internet survey among MSM across 38 European cities showed a high prevalence of recreational drug use in certain MSM groups[25]. Research in many countries suggests that MSM use recreational drugs more commonly than non-MSM[26], and that MSM with diagnosed HIV are more likely to use them than men who are HIV negative or untested[7,27-29]. "ChemSex" is a term commonly used to describe intentional sex under the influence of psychoactive drugs, mostly among MSM but also among heterosexuals[7,30-33]. It refers particularly to the use of mephedrone, γ-hydroxybutyrate (GHB), γ-butyrolactone (GBL), and methamphetamine. These drugs are often used in combination to facilitate sexual sessions lasting several hours or days with multiple sexual partners[7,30]. Use of these drugs can lead to an increase in risk taking sexual behaviour, including unprotected anal sex and an increase in numbers of sexual partners[27,34]. Injection of amphetamine-type drugs such as crystal meth or mephedrone has been reported in several countries, strongly increasing in some countries with trend data available, with for example a three-fold rise reported both in England and in Hungary[3,16,35]. Among MSM the injection of these drugs—slamming—often takes place at sex parties or chill-outs,, and increasingly between individuals meeting via mobile apps, where many of them may share unsterilized equipment[7,36]. Within such environments, these high-risk behaviours are potentially facilitating transmission of HIV, hepatitis C and other sexually transmitted and blood-borne infections, as well as increasing the risks of mental health and substance abuse problems[7,37-39].

While there appears to be an increased need for vigilance with regard to NPS and recreational drugs and rapid action is paramount where risks appear to rise[5], the public health burden of drug use remains greatly determined by the classical drugs, notably heroin and other opioids[1]. In Europe, a minimum estimate of about 6000 overdose deaths occurred in 2013 in the majority of which opioids were implicated, while the overall trend is up[1]. In the US recent strong increases in (prescription) opioid-related deaths have recently been reported as well, and associated HIV outbreaks among PWID[40,41]. Globally, it was estimated that in 2010 opioid use was responsible for the greatest part of the burden of disease with regard to illicit drug use and dependence, even if excluding harms such as stigma, violence and crime[42,43]. More recent (2013-2014) European data, from 5529 emergency room presentations from 16 sites across ten countries, found that the most frequently reported drugs (65%) were the classical drugs (heroin, cocaine, cannabis) followed by prescription drugs (26%) and that NPS were reported in a minority of emergency room presentations (5.6%)[44]. Thus, although in some countries and subgroups of users NPS appear to be causing serious public health problems, overall the public health burden of drug use appears still to be centred on opioids and other classical drugs.

Given the overall lack of clarity regarding the risks associated with the use of NPS and other recreational drugs, in combination with the clear potential for injecting and transmission of blood-borne diseases, it is important to remain vigilant and improve data monitoring, prevention and treatment systems, taking rapid action where needed.

This may involve specific action in each of these three broad and interrelated areas:

1. *Monitoring*. There is a need for improved information on the acute and chronic risks associated with NPS use (e.g. poisoning, overdose, death, social and mental problems[45]). While ongoing monitoring systems exist in some countries (including in the EU), many countries globally lack data generating infrastructure. Approaches may include, or preferably combine, larger probabilistic (general population, school[46-49]) or internet surveys[25,50,51] and lower cost convenience surveys[52] or qualitative panel descriptions. The latter can for example use anthropological methods among party goers and pill testing at events[53] but also include (participative) observation by researchers of internet fora where NPS are being discussed among users, including MSM[8,30,54]. With regard to blood-borne diseases it is important to collect information among both injecting and non-injecting drug users regarding the extent to which they use specific drugs and what are the associated risks (e.g. needle and paraphernalia sharing, overdose, unprotected anal sex). This can be done through repeated surveys or ongoing monitoring among PWID and MSM attending services (e.g. needle and syringe programmes, STI or HIV treatment service contacts, overdose emergency services) and other venues, or using other methods that may include PWID or MSM not in contact with services[25,55]. Health care centres form a range of clinical areas should monitor and record club drug/NPS

incidents (e.g. emergency/acute centre, primary care, and sexual health services). Sexual health and HIV care services may provide opportunistic encounters to identify patterns of recreational drug use and implement strategies to reduce harms related to their use[7,26].

2. *Information provision, prevention and harm reduction*. When NPS appear on a market it is important to disseminate information among people using drugs, including PWID and MSM, regarding potential risks and ways to reduce them. The latter may include simple harm reduction advice such as for an unfamiliar substance to first try a low dose (e.g. a quarter pill), wait, experience and evaluate the effects, before proceeding to a higher one (half pill) etc. This information needs to be factual, accurate, non-judgmental and tailored for the target group if it is to be accepted. Such information is unlikely to be available if not obtained from and in collaboration with actual users (peer-based approaches). Target groups may vary again from school students and party goers to more problematic users including PWID and MSM. PWID (including those among MSM) should be informed about the risks of injecting and that it is safer not to inject drugs but also where sterile injection materials can be obtained in the case that they still have to inject. Facilities should be made available and accessible that provide free sterile injecting materials and other health and social services. One of the challenges is that new populations of users, who do not necessarily fit the typical profile of a person with a serious drug addiction, such as MSM, may not see traditional drug services as meeting their needs[7]. Thus, non-specialist services (such as community-based centres and general practitioners[56]) need to establish effective links with drug services so that specialist support and expertise can be shared. On the other hand, drug services also need to understand, adapt to and meet the needs of the different cultural and social groups that make up emerging drug using populations[57].
3. *Treatment*. Treatment services need to be low-threshold (e.g. no waiting lists, anonymous pre-advice, non-judgmental, etc.) and be open to discuss NPS and recreational drugs as potentially risk enhancing substances even when they are not the primary substance for which a user seeks help. There is a need for widening the palette of treatment options especially for stimulant users including users of NPS, and groups with specific needs such as PWID and MSM, as well as for exploring the barriers to drug treatment services and what targeted services would best serve the user's needs. Treatment of adverse effects needs to be provided in a non-criminalizing and non-stigmatising way and be linked to aftercare and social support and other ancillary services. PWID and MSM need to be offered testing and treatment of blood-borne diseases and other health care for example when presenting with STIs or at other health care contacts. This needs to be done without the need for detoxification and stopping drug injecting, which for many PWID may be near impossible to achieve and is associated with a high risk of adverse events including death[58]. Challenges to address problematic drug use among MSM include the fact that existing drug services are mostly not appropriate for this group, they may feel double stigmatised, existing therapies for stimulant users have limited results, while MSM may not perceive having a problem or high risks or may not want to change their risky behaviours[7]. Referral to specialist services is crucial and specific guidance needs to be developed, as already existing in some countries[56,59].

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