HIV/AIDS Epidemic in the Czech Republic and Related Factors: Comparison of Key Populations of People who Inject Drugs and Men who Have Sex with Men

MRAVČÍK, V.[1,2,3], PITOŇÁK, M.[3], HEJZÁK, R.[4], JANÍKOVÁ, B.[1,2], PROCHÁZKA, I.[5]

1 | National Monitoring Centre for Drugs and Addiction, Office of the Government, Czech Republic
2 | Department of Addictology, First Faculty of Medicine, Charles University and General University Hospital in Prague, Czech Republic
3 | National Institute of Mental Health, Czech Republic
4 | Czech AIDS Help Society, NGO, Czech Republic
5 | Institute of Sexology, First Faculty of Medicine, Charles University and General University Hospital in Prague, Czech Republic

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BACKGROUND: The HIV epidemiological situation has worsened in the past decade in the Czech Republic. This paper analyses relevant factors from the perspective of two key populations – men who have sex with men (MSM) and people who inject drugs (PWID). **METHODS:** A non-systematic literature review comparing relevant factors such as risk behaviours, preventive measures, and stigma in both populations. **RESULTS:** A total of 286 newly diagnosed HIV cases were reported in 2016. Sex between men accounted for 74.5% (and has been rising recently), the proportion of PWID was only 2.4%. HIV prevalence among MSM exceeds 5% regionally (in Prague), while among PWID it is close to zero. Sharing of injecting equipment among PWID seems to be decreasing, the trend in high-risk sexual behaviour among MSM is unknown. There is significantly higher coverage and provision of preventive measures in PWIDs as compared to MSM. There is a lack of support for effective interventions such as post- or pre-exposure prophylaxis (PEP and PrEP). Destigmatisation of drug use has been a part of the drug policy for a long time, the destigmatisation of MSM has not been incorporated into the HIV prevention strategy yet. **CONCLUSION:** HIV prevention in MSM should be scaled up and include state-of-the-art strategies such as PrEP and target the stigma attached to HIV and MSM.

Keywords | HIV/AIDS – People Who Inject Drugs (PWID) – Men Who Have Sex with Men (MSM) – Prevention – Prophylaxis – Stigma

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Corresponding author | Assoc. Prof. Viktor Mravčík, M.D., Ph.D., National Monitoring Centre for Drugs and Addiction, Office of the Government of the Czech Republic, Nábř. E. Beneše 4, 118 01 Prague 1, Czech Republic **mravcik.viktor@vlada.cz**

1 INTRODUCTION

People who inject drugs (PWID) and men having sex with men (MSM) represent two of five key populations at greater risk of acquiring and transmitting HIV infection as defined by international organisations (e.g. World Health Organization, 2016). This review paper analyses the current epidemiological situation in relation to HIV infection in the Czech Republic and compares specific factors which affect the situation of the PWID and MSM groups.

2 METHODOLOGY

A non-systematic literature review was conducted that investigated the current epidemiological situation concerning HIV/AIDS and the implementation of prevention strategies in the Czech Republic targeted at two key populations, PWID and MSM, with regard to high-risk behaviour, coverage by preventive interventions, and the level of stigma involved. Depending on the availability of relevant data, the situation concerning both populations in the Czech Republic is presented within the European or global context. A comparative analysis is also provided to the extent allowed by the character of the indicators under comparison and the available data.

Relevant publications and grey literature known to the authors were used to collect the information about PWID and MSM in the Czech Republic, as any systematic reviews of Czech sources are practically impossible, given the absence of good abstract and citation databases. Situation concerning HIV/AIDS among MSM in the Czech Republic has been recently separately reviewed elsewhere (Mravcik et al., 2017).

3 EPIDEMIOLOGICAL SITUATION

In 2015 there were, globally, 36.7 million people living with HIV/AIDS and 2.1 million new HIV infections were reported (Joint United Nations Programme on HIV/AIDS, 2016). Within the WHO European Region, 153,407 new HIV infections were reported in 2015, with Russia alone accounting for 98,177 cases (17.6/100,000, 7.6/100,000 excluding Russia).

Within the EU, or the European Economic Area (EU/EEA), the number of newly diagnosed HIV infections in 2015 reached 6.3/100,000, with the most common route of transmission being sex between men (42.2%). Heterosexual transmission and injecting drug use (IDU) accounted for 32.0% and 4.2% respectively. In the past decade, the majority of the EU/EEA countries have reported higher levels of incidence, particularly among men having sex with men (MSM), while both heterosexual and parenteral transmission declined (with the exception of the years 2011 and 2012, which saw IDU-related HIV epidemics in Romania and Greece) (European Centre for Disease Prevention and Control and WHO Regional Office for Europe, 2016). PWID represent a significant proportion of new cases, especially in Eastern Europe and Central Asia. In 2015 they accounted for 51% of new HIV infection cases in this region (Joint United Nations Programme on HIV/AIDS, 2016).

In the Czech Republic, the epidemiological situation concerning HIV/AIDS has recorded a major change for the worse in the last 12 years. While in 2004 in total 72 new cases of HIV infection were identified among Czech citizens and foreign nationals with long-term residence permits (residents), the year 2016 witnessed the hitherto highest yearly number of newly diagnosed cases: 286 (2.71/100,000). The increase was particularly apparent among the MSM category; in 2016 it accounted for 74.5% of new HIV cases (213 in absolute numbers), while the proportions of PWID and the mixed PWID/MSM category were 2.4% (seven cases) and 1.4% (four cases) respectively (Státní zdravotní ústav Praha, 2017) *(Figure 1)*.

An overall systematic review of the seroprevalence of HIV infection among PWID was conducted by Degenhardt et al. (2011). They collected information from a total of 61 countries covering 77% of the global population. The prevalence of HIV among PWID across countries ranged from less than 0.01% (eight countries) to 72.1% (Estonia). Extrapolation provided a global estimate of a total of 15.9 million (11.0-21.2) PWID, including 3.0 million who were HIV-positive (0.8-6.6), which means 18.9% seroprevalence. In the majority of the EU countries the prevalence of HIV among PWID is below 10% (European Monitoring Centre for Drugs and Drug Addiction, 2016b). In the Czech Republic, the seroprevalence of HIV among PWID remains very low at less than 1%. In 2015 it ranged from 0.2%, recorded on the basis of diagnostic screening in low-threshold programmes, to 0.4%, identified by (non-representative) testing in prisons (Mravčík et al., 2016).

The current prevalence rate of HIV infection among the MSM group in the Czech Republic is unknown, as bio-behavioural monitoring among MSM is not carried out on a routine basis. In a seroprevalence study conducted as part of the SIALON project from 2008 to 2009, 400 MSM in Prague were interviewed and had their saliva tested for HIV. The prevalence reached 2.6% (Mirandola et al., 2009). This rate may not necessarily reflect the dynamics of the recent epidemic in the Czech Republic.

In view of the absence of seroprevalence data, the authors of this paper attempted to provide their own educated guess estimating the prevalence rate among MSM in Prague, which is presented below. By the end of 2016 the cumulative incidence among MSM in the Czech Republic had reached some 2,000 cases (Malý et al., 2016, Státní zdravotní ústav Praha, 2017). Given the geographic distribution of the newly diagnosed cases, at least 1,000 may be attributed to Prague. Including latent cases of HIV infection with a reasonable estimate of latency at the 25% level [Němeček and Malý (2014) published an estimate of 47% proportion of undiagnosed HIV infection cases, which was recently (2017) updated to 22%; ECDC (2017) arrived at a 17% level of latency in the EU/EEA countries, although the data for the Czech Repub-

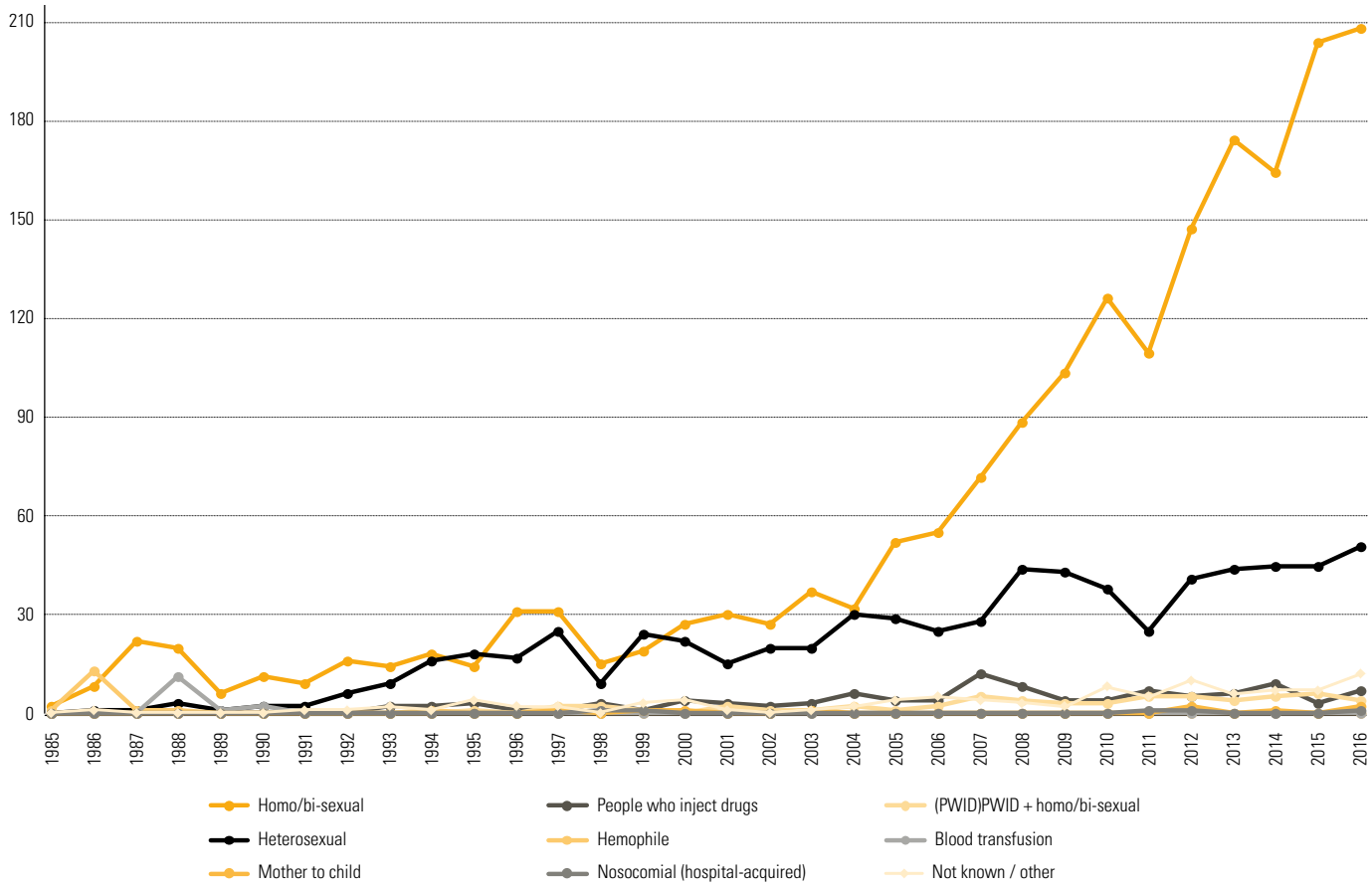

Figure 1 | Newly diagnosed cases of HIV infection in the Czech Republic (1985-2016), by route of transmission (at-risk groups)
Source: Státní zdravotní ústav Praha (2017)

lic was not available], this means some 1,350 HIV-positive MSM, including undiagnosed cases, living in Prague. Assuming that non-heterosexuals account for 5% of the adult male population in Prague (e.g. Hayes et al., 2012), at least 26,000 MSM aged 15 and above can be estimated to live in Prague. 1,350 of them are HIV-positive, which represents an estimated 5.2% seroprevalence rate. The WHO considers a 5% prevalence level as the threshold for a concentrated HIV epidemic (World Health Organisation, 2013a).

4 BEHAVIOURAL FACTORS AFFECTING HIV TRANSMISSION AMONG PWID AND MSM

4.1 PWID

Factors contributing to the risk of HIV transmission among PWID include a longer history and higher frequency of injecting use, sharing needles in general, sharing a needle with an HIV-positive person, risky sexual behaviour, affiliation with an ethnic minority, female gender, lower socioeconomic status, and imprisonment (např. Taran et al., 2011, El-Bassel et al., 2014, Jolley et al., 2012).

The level of injecting use is very high in the Czech Republic; injecting drug users accounted for 94% of all the estimated long-term regular users of opioids and methamphetamine (locally known as pervitin) in the Czech Republic in 2015 (Mravčík et al., 2016). With 6.4 cases per 1,000 people aged 15-64, the prevalence of injecting drug use in the Czech Republic is, after Latvia with 9.2, the second highest among the EU countries which were able to provide data (European Monitoring Centre for Drugs and Drug Addiction, 2016b, European Monitoring Centre for Drugs and Drug Addiction, 2016a).

The proportion of injecting drug users demanding treatment who reported a history of sharing needles and syringes has declined in the past 15 years from about 40% to 30% (Füleová et al., 2015). The Multiplier study focusing on problem drug users in the Czech Republic also found a drop in the level of sharing needles and syringes – while in 2010 clean needles and syringes were used by 82% of PWID when they last injected drugs (567 valid responses), in 2016 the rate rose to 90% (962 valid responses). Condom use when last having sex was reported by 24.6% of the respondents in the Multiplier 2016 study; the time series is not available (Mravčík et al., 2016). The level of risky sexual behaviour among the PWID population is likely to be high and to exceed that observed among the general population. For example, in a seroprevalence study conducted in 2002-2003, 13% of PWID reported having had sex for money, services, or drugs at some point in their life, with women responding to this effect more frequently (Mravčík et al., 2009).

4.2 MSM

The risk of HIV transmission among MSM is primarily associated with condomless anal sex. Anal intercourse poses a risk of transmission that is almost 20 times higher than vaginal intercourse (e.g. Baggaley et al., 2010) which is due to the naturally higher vulnerability of rectal mucosa to HIV infection. Nevertheless, information about the behavioural risks which may have an impact on the current HIV epidemic among MSM in the Czech Republic is limited, as research studies concerned with this topic are scarce. The results of the SIALON project (Mirandola et al., 2009) indicate that MSM in the Czech Republic show a rather lower level of condom use with both steady and casual sex partners than MSM in other countries; only 29.0% of MSM in the Czech Republic reported condom use when last having anal intercourse with another man. Although recent data generated by the EMIS study suggests an increase in the level of condom use among MSM in the Czech Republic (41% during their last episode of anal sex), it is still below average in comparison with other European countries. The level of condom use during casual anal intercourse in the past 12 months among Czech men (35.8%) was comparable to the European median (39.8%). Nevertheless, Czechs tend to have sex with non-steady partners less frequently than the European average (63.2% vs. 75.1%) (The EMIS network, 2013).

The lower level of condom use among MSM in the Czech Republic may be associated with the underdeveloped community prevention network (see further below), the absence of a consistent school-based sex education policy (Jarkovská and Lišková, 2013), generally less fear of HIV/AIDS (Mor and Dan, 2012), and judgemental policies and respectability politics portraying MSM, and gays in particular, as "promiscuous individuals" with "risky lifestyles" (Hammond et al., 2016). There may also be other factors which need to be further explored.

In addition, risky sexual behaviour is linked to "serosorting", i.e. sexual behaviour being adapted to the sex partner's HIV status (např. Cassels and Katz, 2013). Although sex partners often assume mutual HIV negativity (negative serosorting), a high level of condomless sex is also associated with what is referred to as positive serosorting, i.e. partners assume that both are HIV-positive (Procházka, 2015). Positive serosorting is likely to be related to the rise in the occurrence of other sexually transmitted infections among HIV-positive MSM in the Czech Republic (Malý et al., 2016). As an assumption rather than an explicit statement (consent) is often the case, positive and negative serosorting may interfuse.

Internationally, chemsex, i.e. the deliberate use of drugs to enhance sexual pleasure during sexual intercourse, has also been associated recently with an increased level of high-risk behaviour among MSM and their risk of acquiring HIV (Melendez-Torres and Bourne, 2016). According to a Czech online study carried out in 2016 on a sample of 948 individuals, of whom 710 identified themselves as gay, bisexual and having sex with men (MSM), in the past 12 months, methamphetamine had been used during sex by 14%, ecstasy by 12%, GHB/GBL by 8%, mephedrone by 3%, and any other drug (probably alcohol, marijuana, or poppers) by 15% of the respondents (Česká společnost AIDS pomoc, 2016). The results did not make it possible to determine clearly whether drug use had been primarily sexually motivated or whether drug use and subsequent sex had coincided. Neither could it be established whether there is any specific trend among Czech MSM in relation to chemsex and to what extent it may be stigmatised within the MSM community. However, chemsex, or, in other words, the degree of the current use of stimulants characteristic of chemsex, appears to be much lower among MSM in Prague than in London, Amsterdam, and Paris, for example, although it is comparable with the situation found in many other major European cities (Schmidt et al., 2016). A higher risk of the acquisition of HIV may also be related to sex tourism (např. Benotsch et al., 2011) and with the fact that Prague is a well-known and promoted sex tourism destination among the MSM community.

5 PREVENTIVE STRATEGIES AND PREVENTIVE INTERVENTIONS

5.1 HIV/AIDS prevention measures among PWID

Specific preventive strategies focusing on injecting drug use, or harm reduction strategies, have become an integral component of the mainstream national and international public health and drug policies. In particular, they involve needle and syringe exchange programmes (NSP) and opiate substitution treatment (OST), but also incorporate a wide range of interventions, such as counselling and awareness-raising programmes aimed at reducing risk behaviours, drug consumption rooms, heroin assisted treatment programmes, early diagnosis and availability of testing the blood borne infections, the early antiretroviral therapy of HIV-positive individuals based on the treatment-as-prevention approach, peer programmes, and outreach programmes, all these delivered both in the community and in the prison setting (Hedrich et al., 2008, Rhodes and Hedrich, 2010, WHO/UNODC/UNAIDS, 2009). Ecological studies with national data demonstrate that the availability and coverage of IDU-related harm reduction programmes are evidently effective in reducing the spread of HIV infection (Wiessing et al., 2009).

Preventive strategies aimed at eliminating the spread of infectious diseases among PWID have been incorporated into the modern Czech drug policy since its beginning in 1993. In 2001 the harm reduction strategy became explicitly one of the cornerstones of the Czech drug policy (Kiššová, 2009). The first informal needle and syringe exchange programme in what is now the Czech Republic was started in 1987 in Prague at the then Apolinar Out-Patient Drug Addiction Centre, which later became the NGO Drop-In (Kalina, 2007). In 1991, the first NSP received public funding (EMCDDA, 2002).

In 2015 there were 104 NSPs in the Czech Republic, distributing 6.4 million clean syringes altogether (Mravčík et al., 2016). Additionally, in the Czech Republic, there are programmes which distribute gelatine capsules as an oral alternative to injecting methamphetamine use (Mravčík et al., 2011) and aluminium foil for inhaling heroin. Capsules and aluminium foil are offered by over 80 and 70 low-threshold programmes, respectively (Mravčík et al., 2015, Mravčík et al., 2016). In 2015 HIV testing for PWID was offered by 67 low-threshold programmes. These facilities test approximately 3,000 PWID annually, which is no more than about 7% of all the estimated PWID in the Czech Republic. Nevertheless, many more PWID are tested in other programmes, such as in OST, detoxification units etc.: up to 55% of PWID report having been tested for HIV in the past 12 months (Mravčík et al., 2016). In the Czech Republic, opioid agonist substitution treatment (OST) is provided by several dozen physicians (more than 63 of them are listed in the Substitution Treatment Register maintained by the Institute of Health Information and Statistics of the Czech Republic), and an estimated 4,000 of the total of 12,000 estimated problem (injecting) opioid users are in OST (Mravčík et al., 2016).

In recent years, approximately 200 million CZK (approx. EUR 8 million) earmarked in the national, regional, and municipal budgets for the drug policy were provided to fund harm reduction programmes targeted at the problem/injecting drug user group; there was a total of 208 million CZK in 2015, of which 128.4 million was provided from the national budget and 44.7 and CZK 34.9 million CZK from the regional and municipal budgets, respectively; this represented 34.9% of the expenses from public budgets intended for the drug policy in 2015 after the deduction of the law enforcement-related expenditure (Mravčík et al., 2016).

Although the availability of major harm reduction strategies is relatively good in the Czech Republic, the level of coverage by some of the interventions is very low (e.g. OST in the prison setting, which is used by no more than some 70 inmates on a yearly basis) or they are completely unavailable – drug consumption rooms or NSP in prisons, for example (European Monitoring Centre for Drugs and Drug Addiction, 2017).

5.2 HIV/AIDS prevention measures among MSM

According to the international community of public health professionals, the most effective strategy to reduce the transmission of HIV infection is now what is known as *combination prevention*, i.e. a multifaceted strategy comprising behavioural, biomedical, and structural approaches. Combination prevention involves community-based testing (i.e. performed in the non-institutionalized setting among the target groups), including rapid tests and self-testing, education and counselling interventions aimed at reducing risky behaviour, condom distribution, NSP (if needed), treatment of other sexually transmitted diseases (STDs), and the administration of antiretroviral medicines in the therapeutic (ART) and the preventive/prophylactic context (post-exposure and pre-exposure prophylaxis, PEP and PrEP) (Kurth et al., 2011, World Health Organisation, 2013b, Joint United Nations Programme on HIV/AIDS, 2015). Among the MSM group, in particular, a combined holistic approach addressing the HIV epidemic seems vital, as the spread of HIV in this respect involves a number of risk and predisposition factors with syndemic effects (Halkitis et al., 2013).

Until 2017 the general strategic document covering this area was the National Programme for HIV/AIDS in the Czech Republic for 2013-2017 (Vláda České republiky, 2013). Despite the fact that men who have sex with men are the most affected population as the epidemiological situation concerning HIV in the Czech Republic shows, this strategic document for the period 2013-2017 did not define the MSM group as a policy priority. Neither it did articulate specific activities dedicated to the MSM groups. The new policy document for 2018-2022 has already incorporated the prevention of HIV transmission among MSM as a priority and has defined a number of activities to be undertaken in this area.

The financial support for HIV is secured by means of the National HIV Programme, a grant scheme of the Ministry of Health of the Czech Republic which is provided every year. However, the grant scheme methodology remains unchanged in the long term and thus fails to respond to the latest developments and features of the HIV epidemic in the Czech Republic. For example, the guidelines governing the grant programme for 2018 announced by the Ministry of Health in July 2017 were identical to those for the previous years, despite the fact that the most recent medium-term 2018-2022 national policy had underlined new priorities. Thus, activities aimed at MSM are still not defined as a priority in the Czech HIV/AIDS grant scheme and this target group remains among many other ones envisaged in project applications (Ministerstvo zdravotnictví ČR, 2017a).

As for the amount of funds earmarked for HIV/AIDS prevention, in 2005 the budget comprised subsidies to the tune of 28.5 million CZK (approx. EUR 1 million), while in 2015 it was 5.1 million CZK (EUR 0.2 million). It needs to be noted, though, that prior to 2008 the grant scheme was also used to finance HIV/AIDS diagnostics and treatment. Though in 2016 the volume of subsidies available doubled to reach almost 10 million CZK, in the last decade paradoxically the total amount of resources earmarked for HIV/AIDS prevention declined with an increase in the reported incidence of HIV in the Czech Republic *(Figure 2)*.

In reality, moreover, even these limited resources are not used to support projects aimed specifically at MSM. Having analysed the titles of the projects which received support in 2016 in two rounds of the National HIV/AIDS Programme Grant Scheme of the Ministry of Health (available at http://www.mzcr.cz/, section Subsidies, Subsection National Budget 2016), we found that out of the total of 37 projects supported by the aggregate of 9.826 million CZK, eight projects (22%), receiving funding to the total tune of 3.025 million CZK (31%), were specifically focused on MSM

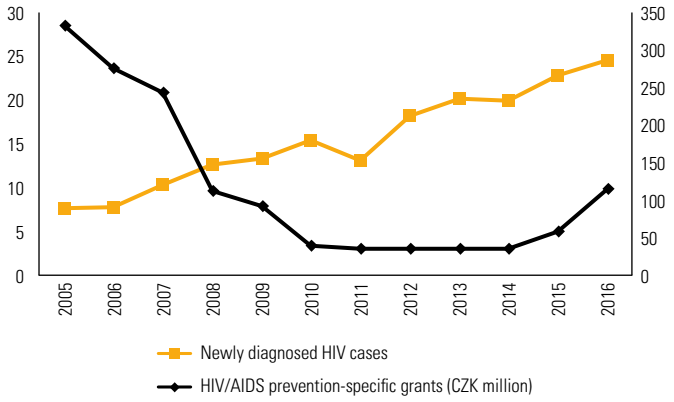

Figure 2 | Annual budgets of the National HIV/AIDS Programme Grant Scheme of the Ministry of Health and the numbers of newly diagnosed cases of HIV infection in the Czech Republic, 2005–2016

(other projects may have included MSM as one of many target groups). This implies insufficient support for community and outreach programmes, for example, which offer testing and early detection of HIV directly within the MSM community. When compared to the resources dedicated to programmes for PWID and considering that the MSM population is the most vulnerable key population in the Czech Republic, the amount of funds earmarked for the prevention of HIV infection among this group is clearly disproportionately low.

Furthermore, the situation concerning the National HIV/AIDS Programme and its funding needs to be viewed in the context of the developments in public health protection and promotion in the Czech Republic in general. According to the Chief Public Health Officer, between 2006 and 2012 the public health service was negatively affected by "transformation", "restructuring", and "optimisation" which resulted in the restriction and reduction of the capacities and operations of the service (e.g. a 43% cut in human resources). The network of AIDS Counselling Centres was also reduced. While in 2006 there were 54 such facilities operated by public health agencies and covering the territory of the Czech Republic evenly, in 2014 only 23 AIDS Counselling Centres were in operation in the entire country, with not more than 13 of them managed by the Public Health Service (Hlavní hygienik ČR, 2014). This has resulted in a dramatic decrease in both geographical and practical access to HIV testing, particularly self-referral testing, and the reduction of related counselling and prevention services. It should be noted that self-referral testing accounts for the highest proportion of newly detected HIV cases (Malý et al., 2015).

The available data indicate that in the Czech Republic there are only a few community-based programmes dedicated to HIV prevention and sexual health among the MSM group. Their services in 2018 include HIV testing and counselling provided by one organization in six outpatient centres (Headquaters in Prague and testing facilities in Ostrava, Olomouc, České Budějovice, Teplice, and Hradec Králové), irregular mobile HIV testing in the vicinity of places frequented by the MSM population and in prisons, the distribution of condoms and lubricants in gay venues (some 80,000 items a year), and the promotion of condom use by means of one-off campaigns on gay social networks, during pre- and post-test counselling, and as part of gay streetwork. The gay streetwork programme aimed at promoting condom use and regular testing for HIV among visitors to gay venues is under way in seven Czech cities (Prague, Pilsen, Liberec, České Budějovice, Brno, Olomouc, and Ostrava), but because of the limited funding, specific activities are undertaken rather sporadically, once in three-four months at a maximum. In total, this involves 12 local community/low-threshold programmes dedicated to MSM, with the majority of them being accessible for a limited period of time only, thus providing coverage which cannot be compared with the network of programmes intended for PWID. The recent results of the HIV/AIDS programme grant scheme for 2018 reveal that a number of mobile testing projects did not receive support, which may further reduce the availability of this service (Ministerstvo zdravotnictví ČR, 2017b).

The level of uptake of testing as reported by Czech MSM is rather low – HIV testing in the past 12 months was reported by 30% of Czech MSM participating in the EMIS study. The European average was 35%, with France showing the highest rate at 47%. Czech MSM also reported very often that HIV testing was not free of charge (The EMIS network, 2013). There is some evidence that the continuing HIV/AIDS-related stigma plays a major role; to "get tested" is associated with a sense of humiliation and is not viewed by society as common (Pehe, 2017). In comparison with Western European countries, in Czech gay establishments condoms are not so readily available and lubricants are practically impossible to obtain (Procházka, 2015).

5.3 Treatment as prevention and pre-exposure prophylaxis

The risk of HIV transmission from HIV-positive individuals on antiretroviral therapy (ART) who had reached an undetectable viral load for a period of at least six months ranges from negligible to zero (Cohen et al., 2016, Rodger et al., 2016). Such treatment is thus a significant strategy to prevent the transmission of HIV (treatment as prevention, TasP). The Czech guidelines for the treatment of HIV-infected adults, too, recommend that ART should be commenced immediately after HIV positivity has been diagnosed (Snopková et al., 2016). The latest evidence on the care continuum in the Czech Republic shows that 71% of those diagnosed with HIV infection receive ART, with 85% of them achieving viral suppression, i.e. their viral load is below 200 HIV copies per 1 ml of peripheral plasma (European Centre for Disease Prevention and Control, 2017). Both professional and social recognition of *treatment as prevention* could facilitate the reduction of the stigma associated with HIV (an infected person with an undetectable viral load cannot transmit the infection) and encourage HIV-positive people to adhere to ART. The importance of treatment as prevention was also endorsed by the Czech

judicial system when the Supreme Court of the Czech Republic stated in a decision in 2016 that when considering the objective aspect of the criminal offence involving the spread of human communicable disease (HIV infection), the circumstances of the offender also need to be assessed in terms of their level of viral load (case law of the Supreme Court, 2016, File reference 8 Tdo 1163/2015b).

Pre-exposure prophylaxis (PrEP) is a particularly useful method for HIV-negative MSM and transgender individuals at high risk of HIV transmission (European AIDS Clinical Society, 2016). Both continuous and intermittent PrEP were found to be highly effective in preventing HIV seroconversion in MSM and were well tolerated, with a low level of resistance and no (compensatory) increase in risky sexual behaviour being observed (Spinner et al., 2016). As either a standard or trial intervention, PrEP is available or being planned in 20 European countries, excluding the Czech Republic, however (European Centre for Disease Prevention and Control, 2016); PrEP is not mentioned in the Czech clinical guidelines (Snopková et al., 2016) and thus if available, PrEP use remains unofficial and unaffordable for most patients. It is notable to admit, that "wild use of PrEP" outside the official networks is a side effect of its practical unavailability and existing demand (e.g. Brisson, 2018). A decline in the incidence of HIV among MSM was recently recorded in London and San Francisco. Among other factors, this development is attributed to PrEP and the high level of treatment coverage following the treatment-as-prevention approach (aidsmap.com, 2016, Brown et al., 2017). The use of PrEP appears to be linked to a higher rate of occurrence of other sexually transmitted diseases, which, however, may be due to a higher rate of tests performed on people on PrEP or selection bias caused by individuals included in PrEP studies showing elevated levels of high-risk behaviour even before the administration of PrEP. In this sense, HIV PrEP is also perceived as an opportunity to improve the early diagnosis and treatment of other sexually transmitted infections among MSM (Kojima et al., 2016, Scott and Klausner, 2016). Duly indicated and clinically monitored PrEP is cost-effective, especially in the light of cheaper generic drugs being available on the market (Hankins et al., 2015). The most common argument against the introduction of PrEP is the development of HIV resistance to ART. However, this risk is particularly imminent in HIV-positive people who are not aware of their status and self-administer PrEP without consulting their physician or proper clinical monitoring (van Tienen et al., 2017). This is just another argument in favour of advocating the formal introduction of PrEP in the Czech Republic too.

6 STIGMA OF HIV, DRUG USE, AND HOMOSEXUALITY

Structural stigma is defined as societal conditions, norms, and policies which constrain the opportunities, resources, and well-being of socially marginalised groups (Hatzenbuehler and Link, 2014).

As regards illicit drugs, in particular, punitive approaches to drug possession and drug users result in increased public health risks, a higher degree of conspiracy, and more drug users remaining "hidden", and, conversely, in a lower number of drug users becoming involved with services, which leads to an elevated level of drug-related health and social harm (Maher and Dixon, 1999, Mimiaga et al., 2010, Sarang et al., 2010). It holds that the illegality of drugs increases their price, which makes users tend to inject drugs (instead of inhaling or snorting them) in order to maximise the effect of a limited supply. In addition to injecting drug use being associated with a higher health risk in itself, PWID often inject drugs in a hurry, in poor sanitary conditions, and with used or shared injecting equipment, which increases the risk of blood-borne diseases (HIV/AIDS and viral hepatitis) or the risk of overdose (Strathdee et al., 2010, Rhodes et al., 2007, Rhodes, 2009). The so-called "war on drugs" is often a war against drug users and leads to their stigmatisation, marginalisation, and social exclusion and, on the contrary, rather than reducing drug use and the related harm, it fuels the cycle of drug use and makes the entire drug problem and the environment in which it occurs more difficult (Buchanan and Young, 2000).

Along with Portugal, the Czech drug policy is often referred to as an example of a modern drug policy because of its decriminalisation of illicit drug use and possession for personal use. The Czech experience also showed that the decriminalisation of drug use does not result in an increase in the level of drug use or a worsening of the drug situation (Cerveny et al., 2017, Mravcik, 2015). Efforts aimed at reducing stigma, including the use of non-labelling language in professional and strategic documents, which has recently become an ethical imperative in modern science, politics, and the media when publishing messages pertaining to substance use (Broyles et al., 2014), are an integral part of the Czech drug policy.

The effect of stigma is also a key factor for the health of the non-heterosexual population (Hatzenbuehler et al., 2014, Pitoňák, 2017). HIV positivity in combination with non-heterosexual orientation leads to multiple stigmatisation which is experienced on both the personal and group levels (Smit et al., 2012). The levels of stigma associated with non-heterosexuality and HIV positivity respectively are not among the systematically monitored indicators in the Czech Republic. It is generally recognised, however, that the Czech Republic ranks among the most tolerant countries with regard to homosexuals. While this was true to a certain extent in the early 1990s (Stehlíková et al., 1995, Takács and Szalma, 2013), at present, when compared to other European countries, the Czech Republic seems to rank among countries with "average" levels of stigma associated with sexual minorities and finds itself somewhere between the countries with a supportive environment and positive approaches towards sexual minorities, such as Sweden and Norway, and countries with hostile attitudes, such as Russia and Ukraine (ILGA-Europe, 2016, Lazarus and Matic, 2009, Pachankis et al., 2017). The Eurobarometer 77.4 survey from 2012 showed, for example, that up to 79% of Dutch people, 73% of Swedes,

and 64% of French people had acquaintances or friends who were gays, lesbians, or bisexuals, while the same was reported by only 20% of Czechs, 15% of Slovaks, 8% of both Hungarians and Bulgarians, and 2% of Romanians (European Commission et al., 2015). Another study found that while only 5% of Spaniards and 6% of each of Norwegians, Swedes, Danes, and French people "would not want homosexuals as their neighbours", the same was indicated by no less than 23% of Czechs, 34% of Slovaks, 53% of Poles, 60% of Ukrainians, and 62% of Russians (European Values Study, 2008). Nevertheless, homophobia in the Czech Republic appears to be declining, as the number of people with non-heterosexual friends grew between 2011 and 2016 from 31.8% to 37.1% and the percentage of people who "would not want homosexuals as their neighbours" dropped from 33.7% in 2005 to 21.4% in 2016 (Centrum pro výzkum veřejného mínění, 2011, Centrum pro výzkum veřejného mínění, 2016).

Another example of social and structural effects is the widespread homophobia, especially homophobia-related bullying, in the school setting (Kosciw et al., 2011). A recent survey among Czech ninth-graders (N=1082) revealed that only half of the boys find it normal to have a "homosexual classmate", compared to eight out of ten girls (Pitoňák and Spilková, 2016). This makes it obvious that non-heterosexuality is associated with a greater stigma among boys than among girls.

In addition to the stigmatisation of non-heterosexuality, stigma associated with HIV positivity is widespread in the Czech Republic. A qualitative content analysis of Czech media showed that HIV infection in the Czech Republic is still often presented in discriminatory terms as "punishment for abnormal behaviour, such as injecting drug use or homosexuality" (Kvášová and Nečas, 2011). The asymmetric obligation to report HIV positivity before treatment in a healthcare facility pursuant to Section 53 of Act No. 258/2000 Coll., on the protection of public health, persists, and a similar "HIV-exceptionalism" was an imminent threat at one time in relation to the uptake of social services (hiv-testování.cz, 2015). Common cases of discrimination are experienced in healthcare facilities; typically, refusal to provide medical (especially dental) treatment because of the patient's HIV-positive status (aktuálně.cz, 2015). In the labour law domain, common forms of discrimination and stigmatisation include loss of one's job or a failure to hire people because of their HIV positivity (ceskatelevize.cz, 2014). According to the records of the Czech AIDS Help Society available to the authors, in 2016 the organisation dealt with cases of discrimination against HIV-positive individuals in healthcare (15 cases of a failure or refusal to provide health services), social services (two cases), and stigmatisation on the part of governmental agencies or public organisations (36 cases) and employers (two cases in the healthcare sector).

Since January 2016 the level of stigma attached to HIV and MSM has risen dramatically in relation to a criminal complaint filed by the Prague Public Health Authority against 30 HIV-positive MSM suspected of spreading human communicable disease (HIV). They were believed to have done so by repeatedly contracting syphilis or other sexually transmitted diseases, despite the fact that given their HIV-positive status they were expected to refrain from risky sexual behaviour (TN.cz, 2016, HIV Justice Network and European AIDS Treatment Group, 2016). Criminalisation of gays, bisexuals, and other MSM for their natural sexual behaviour is a major element of the structural stigma gays, bisexuals and other MSM experience. There is a growing evidence, however, that the risk of HIV transmission seems to increase with criminalisation and repression, as such approaches aggravate the stigma against people living with HIV and the fear and negative emotions they feel and eventually undermine HIV prevention programmes and worsen the public health situation (Dodds and Keogh, 2006, Dodds et al., 2009, Joint United Nations Programme on HIV/AIDS, 2013). In the Czech case from early 2016, too, the initiation of a criminal investigation of a group of MSM had the adverse consequences of deepening their fear of the public healthcare system, reducing their willingness to cooperate, and their looking for alternative ways of seeking testing and treatment services – e.g. people travelled in search of service delivery to nearby Dresden, Germany (hiv-komunita.cz, 2016).

7 CONCLUSION

In 2014 UNAIDS announced its intention to end the AIDS epidemic by 2030 and defined the global objective of reducing the number of new infections among adults to 500,000 by 2020 and to 200,000 by 2030 (Joint United Nations Programme on HIV/AIDS, 2015), which represents a 75% and 90% decrease by 2020 and 2030, respectively. In the Czech setting, to accomplish this goal it would mean a reduction from today's figure of approximately 300 to 75 and 30, respectively, of newly diagnosed cases per year. Such an ambitious objective requires prevention programmes to be specifically targeted at key populations. The situation and the relevant factors in the Czech Republic in relation to two key populations, i.e. MSM and PWID, are summarised in *Table 1*.

The comparison of the situations of PWID and MSM presented in this paper indicates that the coverage of the MSM group by prevention programmes is relatively very low. We recommend that any HIV/AIDS prevention programme to be implemented in the future should particularly involve the following steps:

- target activities specifically at MSM and the geographical areas of greatest concern (especially Prague);
- scale up the coverage of the MSM group by prevention activities, especially by means of outreach and activities facilitating early detection (testing), linkage to treatment, and adherence to treatment;
- introduce harm reduction services for MSM at high risk of acquiring infection (safer drug use during chemsex, distribution of supplies helping to reduce the risk of the transmission of HIV and VHC, etc.);

Factor	PWID	MSM
Number of newly diagnosed HIV infection cases in 2016 (long-term trend)	7 (stable)	209 (growing)
Share in the newly reported cases of HIV infection in 2016	2.4%	74.5%
HIV (anti-HIV) seroprevalence	< 0.5%	> 5% (in Prague)
Risky behaviour	– high level of injecting use in the European context – declining level of needle sharing	– level of condom use among the MSM population during casual sex is slightly below the European average – absence of data about trends in risky behaviour
Public strategy/policy priority	– harm reduction strategies targeted at injecting drug use have been a long-term priority of the drug policy	– HIV prevention among MSM has not been an explicit priority of the HIV-related policy
Volume of financial resources earmarked for prevention programmes aimed at reducing the risk of HIV transmission	– harm reduction programmes as part of the drug policy programme: approx. 200 million CZK (EUR 8 million) a year	– programmes specifically targeted at MSM in the National HIV Programme Grant Scheme of the Ministry of Health: approx. 3 million CZK (EUR 0.1 million) a year
Coverage by prevention programmes in 2015	– 104 community low-threshold harm reduction programmes (drop-in centres and outreach programmes) in the entire Czech Republic – of which 67 offer HIV testing – 63 registered opiate substitution treatment programmes	– 12 community programmes for MSM in the entire Czech Republic – 23 AIDS counselling centres in the entire Czech Republic (2014), of which 13 are managed by the Public Health Service, including four working (in 2018 six) with the Czech AIDS Help Society on programmes targeted at MSM
Stigma	– problem drug use is generally strongly stigmatised – activities associated with the possession and handling of drugs are criminalised – reducing stigma attached to drug users is historically a part of Czech drug policy	– both non-heterosexual orientation and HIV positivity carry stigma – sexual behaviour qualified as (attempted) transmission of human communicable disease is criminalised – reducing stigma attached to MSM has not been defined as a priority of Czech public health policy

Table 1 | Comparison of the current epidemiological situation concerning HIV/AIDS and related factors in the Czech Republic for people who inject drugs (PWID) and men who have sex with men (MSM), 2016 or the most recent data available

- make use of the complete range of the "combination approach", including PEP and PrEP for individuals at high risk;
- build a network of (low-threshold) sexual health centres for MSM providing screening tests for HIV and STIs, as well as making PrEP/PEP available to the MSM group and offering psychotherapeutic support;
- reduce the stigma against people living with HIV and MSM and empower them to participate in the implementation of preventive measures;
- in relation to the above, scale up financial resources earmarked for HIV prevention and adapt the existing configuration of priorities in the relevant grant scheme.

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REFERENCES

AIDSMAP.COM. 2016. *San Francisco reports new low in HIV infections and faster treatment, but disparities remain* [Online]. aidsmap.com. Available: http://www.aidsmap.com/San-Francisco-reports-new-low-in-HIV-infections-and-faster-treatment-but-disparities-remain/page/3082266/ [Accessed 22 Jan 2017.

AKTUÁLNĚ.CZ. 2015. *Plno, jděte jinam. Zubaři odmítají HIV pozitivní pacienty* [Online]. Available: https://zpravy.aktualne.cz/domaci/plno-jdete-jinam-zubari-odmitaji-hiv-pozitivni-pacienty/r~009895e0257611e586d30025900fea04/ [Accessed 29 Dec 206.

BAGGALEY, R. F., WHITE, R. G. & BOILY, M. C. 2010. HIV transmission risk through anal intercourse: systematic review, meta-analysis and implications for HIV prevention. *Int J Epidemiol,* 39, 1048-63.

BENOTSCH, E. G., MARTIN, A. M., ESPIL, F. M., NETTLES, C. D., SEAL, D. W. & PINKERTON, S. D. 2011. Internet use, recreational travel, and HIV risk behaviors in men who have sex with men. *J Community Health,* 36, 398-405.

BRISSON, J. 2018. Ethical public health issues for the use of informal PrEP. *Global Public Health,* 13, 1382-1387.

BROWN, A. E., MOHAMMED, H., OGAZ, D., KIRWAN, P. D., YUNG, M., NASH, S. G., FUREGATO, M., HUGHES, G., CONNOR, N., DELPECH, V. C. & GILL, O. N. 2017. Fall in new HIV diagnoses among men who have sex with men (MSM) at selected London sexual health clinics since early 2015: testing or treatment or pre-exposure prophylaxis (PrEP)? *Euro Surveill,* 22.

BROYLES, L. M., BINSWANGER, I. A., JENKINS, J. A., FINNELL, D. S., FASERU, B., CAVAIOLA, A., PUGATCH, M. & GORDON, A. J. 2014. Confronting inadvertent stigma and pejorative language in addiction scholarship: a recognition and response. *Subst Abus,* 35, 217-21.

BUCHANAN, J. & YOUNG, L. 2000. The War on Drugs: a war on drug users? *Drugs: Education, Prevention and Policy,* 7, 409-422.

CASSELS, S. & KATZ, D. A. 2013. Seroadaptation among men who have sex with men: emerging research themes. *Curr HIV/AIDS Rep,* 10, 305-13.

CENTRUM PRO VÝZKUM VEŘEJNÉHO MÍNĚNÍ 2011. Naše společnost 2011, data. Praha: Centrum pro výzkum veřejného mínění.

CENTRUM PRO VÝZKUM VEŘEJNÉHO MÍNĚNÍ 2016. Naše společnost 2016, data. Praha: Centrum pro výzkum veřejného mínění.

CERVENY, J., CHOMYNOVA, P., MRAVCIK, V. & VAN OURS, J. C. 2017. Cannabis decriminalization and the age of onset of cannabis use. *Int J Drug Policy,* 43, 122-129.

CESKATELEVIZE.CZ 2014. HIV pozitivním lidem zavírají zaměstnavatelé dveře. 15 Feb 2014 ed.

COHEN, M. S., CHEN, Y. Q., MCCAULEY, M., GAMBLE, T., HOSSEINIPOUR, M. C., KUMARASAMY, N., HAKIM, J. G., KUMWENDA, J., GRINSZTEJN, B., PILOTTO, J. H., GODBOLE, S. V., CHARIYALERTSAK, S., SANTOS, B. R., MAYER, K. H., HOFFMAN, I. F., ESHLEMAN, S. H., PIWOWAR-MANNING, E., COTTLE, L., ZHANG, X. C., MAKHEMA, J., MILLS, L. A., PANCHIA, R., FAESEN, S., ERON, J., GALLANT, J., HAVLIR, D., SWINDELLS, S., ELHARRAR, V., BURNS, D., TAHA, T. E., NIELSEN-SAINES, K., CELENTANO, D. D., ESSEX, M., HUDELSON, S. E., REDD, A. D. & FLEMING, T. R. 2016. Antiretroviral Therapy for the Prevention of HIV-1 Transmission. *N Engl J Med,* 375, 830-9.

ČESKÁ SPOLEČNOST AIDS POMOC 2016. On-line dotazníková studie - chemsex. Nepublikováno.

DEGENHARDT, L., BUCELLO, C., MATHERS, B., BRIEGLEB, C., ALI, H., HICKMAN, M. & MCLAREN, J. 2011. Mortality among regular or dependent users of heroin and other opioids: a systematic review and meta-analysis of cohort studies. *Addiction,* 106, 32-51.

DODDS, C., BOURNE, A. & WEAIT, M. 2009. Responses to criminal prosecutions for HIV transmission among gay men with HIV in England and Wales. *Reprod Health Matters,* 17, 135-45.

DODDS, C. & KEOGH, P. 2006. Criminal prosecutions for HIV transmission: people living with HIV respond. *Int J STD AIDS,* 17, 315-8.

EL-BASSEL, N., SHAW, S. A., DASGUPTA, A. & STRATHDEE, S. A. 2014. Drug use as a driver of HIV Risks: Re-emerging and emerging issues. *Current opinion in HIV and AIDS,* 9, 150-155.

EMCDDA 2002. *Report on the Drug Situation in the Candidate CEECs,* Lisboa, Portugal, European Monitoring Centre for Drugs and drug Addiction (EMCDDA).

EUROPEAN AIDS CLINICAL SOCIETY 2016. Guidelines, Version 8.1, October 2016. Copenhagen: European AIDS Clinical Society.

EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL 2016. Evidence brief: Pre-exposure prophylaxis for HIV prevention in Europe. Stockholm: ECDC.

EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL 2017. *Thematic report: Continuum of HIV care. Monitoring implementation of the Dublin Declaration on Partnership to Fight HIV/AIDS in Europe and Central Asia: 2017 progress report,* Stockholm, ECDC.

EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL & WHO REGIONAL OFFICE FOR EUROPE 2016. *HIV/AIDS surveillance in Europe 2015,* Stockholm, ECDC.

EUROPEAN COMMISSION, EUROPEAN PARLIAMENT & TNS OPINION & SOCIAL 2015. Eurobarometer 77.4 (2012). GESIS Data Archive, Cologne. ZA5613 Data file Version 3.0.0. Brussels.

EUROPEAN MONITORING CENTRE FOR DRUGS AND DRUG ADDICTION 2016a. *European Drug Report 2016: Trends and developments,* Luxembourg, Publications Office of the European Union.

EUROPEAN MONITORING CENTRE FOR DRUGS AND DRUG ADDICTION. 2016b. *Statistical bulletin 2016* [Online]. Lisbon: EMCDDA. Available: http://www.emcdda.europa.eu/stats16.

EUROPEAN MONITORING CENTRE FOR DRUGS AND DRUG ADDICTION 2017. European Drug Report 2017. Trends and development.

EUROPEAN VALUES STUDY 2008. European Values Study Integrated Dataset, 4th Wave.

FÜLEOVÁ, A., ZÓNOVÁ, J. & PETRÁŠOVÁ, B. 2015. *Výroční zpráva: Incidence, prevalence, zdravotní dopady a trendy léčených uživatelů drog v České republice v roce 2014,* Praha, Hygienická stanice hl. m. Prahy.

HALKITIS, P. N., WOLITSKI, R. J. & MILLETT, G. A. 2013. A holistic approach to addressing HIV infection disparities in gay, bisexual, and other men who have sex with men. *Am Psychol,* 68, 261-73.

HAMMOND, C., HOLMES, D. & MERCIER, M. 2016. Breeding new forms of life: a critical reflection on extreme variances of bareback sex. *Nurs Inq,* 23, 267-77.

HANKINS, C., MACKLIN, R. & WARREN, M. 2015. Translating PrEP effectiveness into public health impact: key considerations for decision-makers on cost-effectiveness, price, regulatory issues, distributive justice and advocacy for access. *J Int AIDS Soc,* 18, 19973.

HATZENBUEHLER, M. L., BELLATORRE, A., LEE, Y., FINCH, B. K., MUENNIG, P. & FISCELLA, K. 2014. Structural stigma and all-cause mortality in sexual minority populations. *Soc Sci Med,* 103, 33-41.

HATZENBUEHLER, M. L. & LINK, B. G. 2014. Introduction to the special issue on structural stigma and health. *Soc Sci Med,* 103, 1-6.

HAYES, J., CHAKRABORTY, A. T., MCMANUS, S., BEBBINGTON, P., BRUGHA, T., NICHOLSON, S. & KING, M. 2012. Prevalence of same-sex behavior and orientation in England: results from a national survey. *Arch Sex Behav,* 41, 631-9.

HEDRICH, D., PIRONA, A. & WIESSING, L. 2008. From margin to mainstream: The evolution of harm reduction responses to problem drug use in Europe. *Drugs: education, prevention and policy,* 15(6), 503-17.

HIV-KOMUNITA.CZ. 2016. *Testovani-Drazdany. Příspěvek na komunitním fóru z 12. 6. 2016* [Online]. Available: http://www.hiv-komunita.cz/diskuzni-forum-pro-hiv-pozitivni-obcany.html [Accessed 6 Jan 2017.

HIV-TESTOVÁNÍ.CZ. 2015. *Povinné testování na HIV ani sdělování HIV statusu při poskytování sociálních služeb poslanci neschválili* [Online]. Available: http://www.hiv-testovani.cz/clanky/povinne-testovani-na-hiv-ani-sdelovani-hiv-

statusu-pri-poskytovani-socialnich-sluzeb-poslanci-neschvalili.html [Accessed 29 Dec 2016.

HIV JUSTICE NETWORK & EUROPEAN AIDS TREATMENT GROUP. 2016. *Stop the Prague public health authority's persecution and intimidation of people living with HIV [press release]* [Online]. Available: http://www.hivjustice.net/news/stop-the-prague-public-health-authoritys-persecution-and-intimidation-of-people-living-with-hiv-press-release/ [Accessed 28 Dec 2016.

HLAVNÍ HYGIENIK ČR 2014. Dopady restrikce v hygienické službě v letech 2006–2012 na zajištění ochrany a podpory veřejného zdraví a primární prevence nemocí v ČR. Praha: Ministerstvo zdravotnictví ČR.

ILGA-EUROPE 2016. Annual Review of the Human Rights Situation of Lesbian, Gay, Bisexual, Trans and Intersex People in Europe 2016. Brussels: International Lesbian, Gay, Bisexual, Trans & Intersex Association.

JARKOVSKÁ, L. & LIŠKOVÁ, K. 2013. The demise of tradition and its salvation through sex: the discursive strategies of opponents of sex education. *Sociologický časopis - Czech sociological review,* 49, 269-290.

JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS 2013. Ending overly broad criminalization of HIV non-disclosure, exposure and transmission: Critical scientific, medical and legal considerations. Geneva: UNAIDS.

JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS 2015. Fast-tracking combination prevention: towards reducing new hiv infections to fewer than 500 000 by 2020. Geneva: UNAIDS.

JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS 2016. Global AIDS update 2016. Geneva: UNAIDS.

JOLLEY, E., RHODES, T., PLATT, L., HOPE, V., LATYPOV, A., DONOGHOE, M. & WILSON, D. 2012. HIV among people who inject drugs in Central and Eastern Europe and Central Asia: a systematic review with implications for policy. *BMJ Open,* 2, e001465.

KALINA, K. 2007. Developing the System of Drug Services in the Czech Republic. *Journal of Drug Issues,* 37 (1), 181-204.

KIŠŠOVÁ, L. 2009. Česká protidrogová politika a její koordinace. Historie a současnost. *Zaostřeno na drogy,* 7 (2), 1-12.

KOJIMA, N., DAVEY, D. J. & KLAUSNER, J. D. 2016. Pre-exposure prophylaxis for HIV infection and new sexually transmitted infections among men who have sex with men. *Aids,* 30, 2251-2.

KOSCIW, J. G., GREYTAK, E. A., BARTKIEWICZ, M. J., BOESEN, M. J. & PALMER, N. A. 2011. *The 2011 National School Climate Survey.*

KURTH, A. E., CELUM, C., BAETEN, J. M., VERMUND, S. H. & WASSERHEIT, J. N. 2011. Combination HIV prevention: significance, challenges, and opportunities. *Curr HIV/AIDS Rep,* 8, 62-72.

KVÁŠOVÁ, S. & NEČAS, V. 2011. HIV/AIDS v českých denících v proměnách času. *Adiktologie,* 11, 200-206.

LAZARUS, J. V. & MATIC, S. 2009. Men Who Have Sex with Men in Eastern Europe: A Time to Act. *Journal of LGBT Health Research,* 5, 1-3.

MAHER, L. & DIXON, D. 1999. Policing and public health: Law enforcement and harm minimization in a street-level drug market. *British Journal of Criminology,* 39, 488-512.

MALÝ, M., NĚMEČEK, V. & ZÁKOUCKÁ, H. 2015. Výskyt a šíření HIV/AIDS v České republice v roce 2014 [The prevalence and spread of HIV/AIDS in the Czech Republic in 2014]. *Zprávy centra epidemiologie a mikrobiologie (SZÚ, Praha),* 24, 294-304.

MALÝ, M., NĚMEČEK, V. & ZÁKOUCKÁ, H. 2016. Výskyt a šíření HIV/AIDS v České republice v roce 2015. *Zprávy centra epidemiologie a mikrobiologie,* 25, 320-330.

MELENDEZ-TORRES, G. J. & BOURNE, A. 2016. Illicit drug use and its association with sexual risk behaviour among MSM: more questions than answers? *Curr Opin Infect Dis,* 29, 58-63.

MIMIAGA, M. J., SAFREN, S. A., DVORYAK, S., REISNER, S. L., NEEDLE, R. & WOODY, G. 2010. "We fear the police, and the police fear us": structural and individual barriers and facilitators to HIV medication adherence among injection drug users in Kiev, Ukraine. *AIDS Care,* 22, 1305-13.

MINISTERSTVO ZDRAVOTNICTVÍ ČR. 2017a. *Metodika pro žadatele o poskytnutní státní dotace v rámci Národního programu řešení problematiky HIV/AIDS pro rok 2018* [Online]. Praha: Ministerstvo zdravotnictví ČR. Available: https://www.mzcr.cz/dokumenty/metodika-pro-zadatele-o-poskytnutni-statni-dotace-v-ramci-narodniho-programu-res_13965_1.html [Accessed 30 Jul 2017.

MINISTERSTVO ZDRAVOTNICTVÍ ČR. 2017b. *Výsledky výběrového řízení dotačního programu MZ ČR Národní program řešení problematiky HIV/AIDS pro rok 2018* [Online]. Praha: Ministerstvo zdravotnictví ČR. Available: https://www.mzcr.cz/obsah/vysledky-dotacniho-rizeni_3800_1.html [Accessed 13 March 2018.

MIRANDOLA, M., FOLCH TODA, C., KRAMPAC, I., NITA, I., STANEKOVA, D., STEHLIKOVA, D., TOSKIN, I., GIOS, L., FOSCHIA, J. P., BREVEGLIERI, M., FUREGATO, M., CASTELLANI, E. & BONAVINA, M. G. 2009. HIV bio-behavioural survey among men who have sex with men in Barcelona, Bratislava, Bucharest, Ljubljana, Prague and Verona, 2008-2009. *Euro Surveill,* 14.

MOR, Z. & DAN, M. 2012. The HIV epidemic among men who have sex with men—behaviour beats science. *EMBO Reports,* 13, 948-953.

MRAVCIK, V. 2015. (De)criminalisation of possession of drugs for personal use - A view from the Czech Republic. *Int J Drug Policy,* 26, 705-7.

MRAVCIK, V., PITONAK, M., HEJZAK, R., JANIKOVA, B. & PROCHAZKA, I. 2017. HIV epidemic among men who have sex with men in the Czech Republic, 2016: high time for targeted action. *Euro Surveill,* 22.

MRAVČÍK, V., CHOMYNOVÁ, P., GROHMANNOVÁ, K., JANÍKOVÁ, B., GROLMUSOVÁ, L., TION LEŠTINOVÁ, Z., ROUS, Z., KIŠŠOVÁ, L., NECHANSKÁ, B., SOPKO, B., VLACH, T., FIDESOVÁ, H., JURYSTOVÁ, L. & VOPRAVIL, J. 2015. *Výroční zpráva o stavu ve věcech drog v České republice v roce 2014,* Praha, Úřad vlády České republiky.

MRAVČÍK, V., CHOMYNOVÁ, P., GROHMANNOVÁ, K., JANÍKOVÁ, B., TION LEŠTINOVÁ, Z., ROUS, Z., KIŠŠOVÁ, L., KOZÁK, J., NECHANSKÁ, B., VLACH, T., ČERNÍKOVÁ, T., FIDESOVÁ, H., JURYSTOVÁ, L. & VOPRAVIL, J. 2016. *Výroční zpráva o stavu ve věcech drog v České republice v roce 2015,* Praha, Úřad vlády České republiky.

MRAVČÍK, V., PETROŠOVÁ, B., ZÁBRANSKÝ, T., COUFALOVÁ, M. & ŘEHÁK, V. 2009. *Výskyt VHC u injekčních uživatelů drog. Výsledky studie prováděné mezi klienty nízkoprahových zařízení v letech 2002-2005,* Praha, Úřad vlády ČR.

MRAVČÍK, V., ŠKAŘUPOVÁ, K., ORLÍKOVÁ, B., ZÁBRANSKÝ, T., KARACHALIOU, K. & SCHULTE, B. 2011. Use of gelatine capsules for application of methamphetamine: A new harm reduction approach. *International Journal of Drug Policy,* 22(2), 172-73.

NĚMEČEK, V. & MALÝ, M. 2014. Diagnostika a epidemiologie HIV. *Základy HIV poradenství dne 11. 12. 2014.* Praha: Státní zdravotní ústav.

PACHANKIS, J. E., HATZENBUEHLER, M. L., MIRANDOLA, M., WEATHERBURN, P., BERG, R. C., MARCUS, U. & SCHMIDT, A. J. 2017. The Geography of Sexual Orientation: Structural Stigma and Sexual Attraction, Behavior, and Identity Among Men Who Have Sex with Men Across 38 European Countries. *Arch Sex Behav,* 46, 1491-1502.

PEHE, V. 2017. *Preventivní lék proti HIV? Existuje a funguje, ale ne u nás* [Online]. a2larm.cz: a2larm.cz. Available: http://a2larm.cz/2017/07/preventivni-lek-proti-hiv-existuje-a-funguje-ale-ne-u-nas/ [Accessed 30 July 2017.

PITOŇÁK, M. 2017. Mental health in non-heterosexuals: Minority stress theory and related explanation frameworks review. *Mental Health & Prevention,* 5, 63-73.

PITOŇÁK, M. & SPILKOVÁ, J. 2016. Homophobic Prejudice in Czech Youth: a Sociodemographic Analysis of Young People's Opinions on Homosexuality. *Sexuality Research & Social Policy: Journal of NSRC,* 13, 215-229.

PROCHÁZKA, I. 2015. Příčiny nárůstu HIV v gay (MSM) komunitě. *In:* ŠIKOLOVÁ, V. (ed.) *Ročenka Národního programu HIV/AIDS v České republice 2013–2014.* Praha: Státní zdravotní ústav Praha.

RHODES, T. 2009. Risk environments and drug harms: a social science for harm reduction approach. *Int J Drug Policy,* 20, 193-201.

RHODES, T. & HEDRICH, D. 2010. Harm reduction and the mainstream. *In:* RHODES, T. & HEDRICH, D. (eds.) *Harm reduction: evidence, impacts and challenges. Scientific Monograph Series No. 10.* Lisbon: European monitoring centre for drugs and drug addiction.

RHODES, T., WATTS, L., DAVIES, S., MARTIN, A., SMITH, J., CLARK, D., CRAINE, N. & LYONS, M. 2007. Risk, shame and the public injector: a qualitative study of drug injecting in South Wales. *Soc Sci Med,* 65, 572-85.

RODGER, A. J., CAMBIANO, V., BRUUN, T., VERNAZZA, P., COLLINS, S., VAN LUNZEN, J., CORBELLI, G. M., ESTRADA, V., GERETTI, A. M., BELOUKAS, A., ASBOE, D., VICIANA, P., GUTIERREZ, F., CLOTET, B., PRADIER, C., GERSTOFT, J., WEBER, R., WESTLING, K., WANDELER, G., PRINS, J. M., RIEGER, A., STOECKLE, M., KUMMERLE, T., BINI, T., AMMASSARI, A., GILSON, R., KRZNARIC, I., RISTOLA, M., ZANGERLE, R., HANDBERG, P., ANTELA, A., ALLAN, S., PHILLIPS, A. N. & LUNDGREN, J. 2016. Sexual Activity Without Condoms and Risk of HIV Transmission in Serodifferent Couples When the HIV-Positive Partner Is Using Suppressive Antiretroviral Therapy. *Jama,* 316, 171-81.

SARANG, A., RHODES, T., SHEON, N. & PAGE, K. 2010. Policing drug users in Russia: risk, fear, and structural violence. *Subst Use Misuse,* 45, 813-64.

SCOTT, H. M. & KLAUSNER, J. D. 2016. Sexually transmitted infections and pre-exposure prophylaxis: challenges and opportunities among men who have sex with men in the US. *AIDS Res Ther,* 13, 5.

SCHMIDT, A. J., BOURNE, A., WEATHERBURN, P., REID, D., MARCUS, U. & HICKSON, F. 2016. Illicit drug use among gay and bisexual men in 44 cities: Findings from the European MSM Internet Survey (EMIS). *Int J Drug Policy,* 38, 4-12.

SMIT, P. J., BRADY, M., CARTER, M., FERNANDES, R., LAMORE, L., MEULBROEK, M., OHAYON, M., PLATTEAU, T., REHBERG, P., ROCKSTROH, J. K. & THOMPSON, M. 2012. HIV-related stigma within communities of gay men: a literature review. *AIDS Care,* 24, 405-12.

SNOPKOVÁ, S., ROZSYPAL, H., ASTER, V., SEDLÁČEK, D., KAPLA, J., JERHOTOVÁ, Z., OLBRECHTOVÁ, L., ZJEVÍKOVÁ, A., DLOUHÝ, P., JILICH, D. & VESELÝ, D. 2016. Doporučený postup péče o dospělé infikované HIV a postexpoziční profylaxe infekce HIV. *Klinická mikrobiologie a infekční lékařství,* 22, 20-38.

SPINNER, C. D., BOESECKE, C., ZINK, A., JESSEN, H., STELLBRINK, H. J., ROCKSTROH, J. K. & ESSER, S. 2016. HIV pre-exposure prophylaxis (PrEP): a review of current knowledge of oral systemic HIV PrEP in humans. *Infection,* 44, 151-8.

STÁTNÍ ZDRAVOTNÍ ÚSTAV PRAHA 2017. Trendy vývoje a výskyt HIV/AIDS v ČR v roce 2016. Praha: Státní zdravotní ústav Praha, NRL pro HIV/AIDS.

STEHLÍKOVÁ, D., PROCHÁZKA, I. & HROMADA, J. 1995. *Homosexualita, společnost a AIDS v ČR,* Praha, Orbis.

STRATHDEE, S. A., HALLETT, T. B., BOBROVA, N., RHODES, T., BOOTH, R., ABDOOL, R. & HANKINS, C. A. 2010. HIV and risk environment for injecting drug users: the past, present, and future. *Lancet,* 376, 268-84.

TAKÁCS, J. & SZALMA, I. 2013. How to measure homophobia in an international comparison? *Družboslovne razprave,* 29, 11-42.

TARAN, Y. S., JOHNSTON, L. G., POHORILA, N. B. & SALIUK, T. O. 2011. Correlates of HIV risk among injecting drug users in sixteen Ukrainian cities. *AIDS Behav,* 15, 65-74.

THE EMIS NETWORK 2013. *EMIS 2010: The European Men-Who-Have-Sex-With-Men Internet Survey. Findings from 38 countries,* Stockholm, European Centre for Disease Prevention and Control.

TN.CZ. 2016. *Policie hledá 30 mužů. Měli HIV a přesto si užívali nechráněný sex!* [Online]. Available: http://tn.nova.cz/clanek/policie-hleda-30-muzu-meli-hiv-a-presto-si-uzivali-nechraneny-sex.html [Accessed 28 Dec 2016.

VAN TIENEN, C., VAN DE VIJVER, D., NOORI, T., SÖNNERBORG, A. & BOUCHER, C. 2017. Letter to the editor: Pre-exposure prophylaxis for HIV in Europe: The need for resistance surveillance. *Eurosurveillance,* 22, 30483.

VLÁDA ČESKÉ REPUBLIKY 2013. Národní program řešení problematiky HIV/AIDS v České republice na období 2013-2017. *Věstník vlády pro orgány krajů a orgány obcí ze dne 29. ledna 2013, ročník 11, částka 1.*

WHO/UNODC/UNAIDS 2009. Technical guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users. Geneva: WHO.

WIESSING, L., LIKATAVICIUS, G., KLEMPOVA, D., HEDRICH, D., NARDONE , A. & GRIFFITHS, P. 2009. Associations Between Availability and Coverage of HIV-Prevention Measures and Subsequent Incidence of Diagnosed HIV Infection Among Injection Drug Users. *American Journal of Public Health,* 99(6), 1049-52.

WORLD HEALTH ORGANISATION 2013a. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection. Geneva: WHO.

WORLD HEALTH ORGANISATION 2013b. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. Geneva: WHO.

WORLD HEALTH ORGANIZATION 2016. Global health sector strategy on HIV 2016–2021: towards ending AIDS. Geneva: WHO.