Published in final edited form as:

Int J Drug Policy. 2013 July ; 24(4): 277–278. doi:10.1016/j.drugpo.2013.05.009.

Krokodil and other home-produced drugs for injection: A perspective from Ukraine

Robert E. Booth

University of Colorado Denver, School of Medicine, United States

In this issue of the journal, Jean Paul Grund and colleagues (2003) describe recent trends in the injection of 'krokodil' and the adverse health consequences linked to this. Having worked in Ukraine for the past 12 years, including in the cities of Kiev, Odessa, Donetsk, Nikolayev and Simferopol, the dangers linked to home-produced drug solutions are all too apparent (Skowronek, Celinski, & Chowaniec, 2012; Gahr et al., 2012). These include opiates such as shirka or hemia (in Odessa), stimulants such as vint, jeff and boltushka, and, more recently, krokodil (Booth, Kennedy, Brewster, & Semerik, 2003; Booth, Kwiatkowski, Brewster, Sinitsyna, & Dvoryak, 2006; Booth, Mikulich-Gilbertson, Brewster, Salomonson-Sautel, & Semerik, 2004; Chintalova-Dallas, Case, Kitsenko, & Lazzarine 2009). Krokodil seems by far the most dramatic in its adverse health consequences. Further research is needed to determine the chemical component produced and the particular element(s) that are so costly to the health of the user.

My current research and intervention project targets drug injectors in Odessa, Donetsk and Nikolayev (Peer Leaders as HIV Risk Reduction Change Agents among IDUs in Ukraine; NIH RO1 DA026739). Based on a recent trip to Ukraine, of these cities, krokodil use appears to be most problematic in Donetsk. However, from data collected using the Risk Behavior Assessment developed by the National Institute on Drug Abuse, modified for Ukraine based on drug use practices, krokodil use has declined since November 2012, from around 60% to 40% among polydrug PWIDs (people who inject drugs) and from 20% to 5% among krokodil-only injectors. According to the non-government organization (NGO) involved in the study, reasons for this are the increased availability of opiates (poppy straw) and users' improved awareness of the harms associated with krokodil. In Ukraine, transitions from injecting poppy straw, stimulants (pseudo-ephedrine) or krokodil are driven by two primary factors: the availability of poppy straw and police activity. The vast majority of PWIDs in Ukraine prefer opiates, yet it is seasonal and the police frequently close down the "drug sale" points. Poppy straw is available year-round, although scarce in winter.

While drug injecting in Ukraine may have pre-dated the fall of the Soviet Union, it was not widespread; indeed, the disruption that followed the withdrawal of the Soviets in Ukraine created the conditions that led to the rapid expansion of drug use and, soon thereafter, HIV and AIDS. There are a number of causes for the rapid increase in HIV among IDUs in this region. Many attribute the epidemic to the social and economic disintegration that followed the collapse of the Soviet Union in 1991 (Dehne, Pokrovskiy, Kobyshcha, & Schwartlander, 2000; Pozynyak, Pelipas, Vievski, & Miroshnichenko, 2002; Rhodes, Ball et al. 1999; Rhodes, Stimson et al. 1999). During the period of the Soviet occupation, strict controls and

police policies restricted the availability of drugs and there were, consequently, few IDUs (Somlai et al., 2002). With the withdrawal of the Soviet Union in December 1991, police controls became ineffective, drugs more readily available, and corruption uncontrolled (Atlani, Carael, Brunet, Frasca, & Chaika, 2000; Dehne, Grund, Khodakevich, & Kobyshcha, 1999; Hamers & Downs, 2003). Locally produced opiates and amphetamines proliferated (Rhodes, Ball, et al., 1999; Rhodes, Stimson, et al., 1999; UNIDCP, 1997) as did the number of substance users. Registered drug users increased from 30,000 to 63,000 between 1990 and 1996 (Pozynyak et al., 2002) and new cases of HIV also began to appear. State-supported services, including health care, were reduced or eliminated (UNICEF, 1999; United Nations, 1997).

In addition to the social and economic disruption that followed the collapse of the Soviet Union (UNICEF, 1999; United Nations Development Program, 1999), and the proliferation of opiates and amphetamines (Rhodes, Stimson, et al., 1999), the injecting practices of IDUs in Ukraine undoubtedly played a major role in the sharp rise in HIV infection (Booth et al., 2004, 2006; Rhodes, Sarang, Bobrik, Bobkov, & Platt, 2004). The drugs most commonly injected in Ukraine are liquid poppy straw, sometimes mixed with Demerol (opiate/sedative mix), and pseudo-ephedrine, a stimulant (Rhodes, Stimson, & Quirk, 1996). Liquid poppy straw is usually purchased in pre-loaded syringes from Roma selling in open-air markets or from drug dealers who are typically injectors (Booth et al., 2003). In the latter case, the drug solution is extracted from a common container with the user's needle/syringe, or with the dealer's needle/syringe, and front or backloaded into the user's syringe (Booth et al., 2003; Rhodes et al., 1996). By the late 1990s it was apparent that HIV was associated with the use of liquid opiates (Liitsolva et al., 1998). Injecting pseudo-ephedrine, typically obtained through pharmacies, also involves the use of shared drug mixing containers (Ball, Rana, & Dehne, 1998; Dehne et al., 1999). IDUs injecting home produced ephedrine-based solutions have a greater likelihood of sharing needles/syringes, as well as the drug itself, when injecting in peer networks (Dehne et al., 1999; Rhodes et al., 2002). Injecting drugs obtained from common containers, together with front and backloading and injecting with a previously used unclean needle/syringe, created an extremely high risk environment among IDUs in Ukraine. Combined with the situational factors following the fall of the Soviet Union, these behavioral factors likely fueled the HIV epidemic in the region (Rhodes et al., 2004).

Among the street-users recruited into my studies in Ukraine, totaling now more than 7000, use of heroin is virtually non-existent. It is available in the discos and clubs but unaffordable to the marginalized. Instead, poppy straw is used, obtained either in preloaded syringes or from dealers drawing the solution from a common container. The heroin 'drought' may have affected PWIDs in Russia, as suggested by Grund, Latypov, & Harris, (2013) but it played little or no role among street-recruited drug injectors in Ukraine. Access to poppy straw is seasonal and strongly affected by police presence. When it is scarce, injectors will turn to other opiate-type drugs, including krokodil.

Unfortunately, as so well-articulated by Grund and colleagues, the health consequences of injecting krokodil are devastating. The question posed in the article as to why krokodil users with phlebitis, gangrene, or dead tissue avoid seeking help is a good one and one that

requires answers. An equally important question is why, with knowledge of the harms associated with krokodil, do PWIDs continue to inject this drug, as well as other home-made drug solutions? Perhaps the answer to this last question can be found in the words of a focus group participant from Odessa who, after describing his risky injection practices was asked if he was worried about getting HIV. His reply was “no”. When asked what his biggest worry was, he said “withdrawal”. When asked his second biggest worry, he stated “the police”. “Not AIDS”, he was asked? “No, withdrawal and the police are today. If I get HIV I will still live 10 more years”. A primary factor influencing why PWID in Ukraine may not seek treatment for harms related to injecting krokodil is the discriminatory and degrading health care system they experience. In a recently completed study we conducted in Odessa, addressing this issue among others (Structural Barriers to HIV Prevention and Treatment with IDUs in Ukraine; NIH R21 DA024590), focus group participants repeatedly told of the discrimination they routinely experienced. According to a female participant, “I was taken to a hospital when I was very sick with a fever and could not walk and they refused to treat me. They told me to go buy syringes and bandages and medications. They asked for money and when I didn’t have any I was asked to leave the clinic by the doctors.” Another stated, “I had an abscess that needed IV antibiotics and was told by the clinic to buy the antibiotics at a pharmacy that they would not treat me”. Still another said, “You are not a human. Doctors like to say ‘it is your fault. You should have known. You have had enough of life’.” In one focus group with 8 females, every participant reported being refused medical treatment. These violations and others have been well-documented (Human Rights Watch, 2006). Yet they continue to this day.

References

Atlani L, Carael M, Brunet JB, Frasca T, Chaika N. Social change and HIV in the former USSR: the making of a new epidemic. Social Science and Medicine. 2000; 50:1547–1556. [PubMed: 10795962]

Ball A, Rana S, Dehne KL. HIV prevention among injecting drug users: Responses in developing and transitional countries. Public Health Report. 1998; 113(Suppl. 1):170–181.

Booth RE, Kennedy JK, Brewster JT, Semerik O. Drug injectors and dealers in Odessa, Ukraine. Journal of Psychoactive Drugs. 2003; 35:419–426. [PubMed: 14986870]

Booth RE, Mikulich-Gilbertson SK, Brewster JT, Salomonson-Sautel S, Semerik O. Predictors of self-reported HIV infection among drug injectors in Ukraine. Journal of the Acquired Immune Deficiency Syndromes. 2004; 35:82–88.

Booth RE, Kwiatkowski CF, Brewster JT, Sinitsyna L, Dvoryak S. Predictors of HIV sero-status among drug injectors at three Ukraine sites. AIDS. 2006; 20:2217–2223. [PubMed: 17086062]

Chintalova-Dallas R, Case P, Kitsenko N, Lazzarine Z. Boltushka: Home made amphetamine and HIV risk in Odessa, Ukraine. International Journal of Drug Policy. 2009; 20:347–351. [PubMed: 18976896]

Dehne KL, Grund JC, Khodakevich L, Kobyshcha Y. The HIV/AIDS epidemic among drug injectors in Eastern Europe: Patterns, trends and determinants. Journal of Drug Issues. 1999; 29:729–776.

Dehne KL, Pokrovskiy V, Kobyshcha Y, Schwartlander B. Update on the epidemic of HIV and other sexually transmitted infections in the newly independent states of the former Soviet Union. AIDS. 2000; 14(Suppl. 3):S75–S84. [PubMed: 11086851]

Gahr M, Freudenmann R, Hiemke C, Gunst I, Connemann B, Schonfeldt-Lecuona C. Desmorphine goes “crocodile”. Journal of Addictive Diseases. 2012; 31:407–412. [PubMed: 23244560]

Grund JPC, Latypov AB, Harris M. Breaking worse: The emergence of Krokodile and excessive injuries among people who inject drugs in Eastern Europe. International Journal of Drug Policy. 2013

Hamers FF, Downs AM. HIV in Central and Eastern Europe. Lancet. 2003; 361:1035–1044. [PubMed: 12660072]

Human Rights Watch. Rhetoric and Risk: Human Rights Abuses Impeding Ukraine's Fight against HIV/AIDS. 2006 Mar.18(2)

Liitsolva K, Tashinova I, Laukkanen T, Korovina G, Smolskaja T, Momot O, et al. HIV-1 genetic subtype A/B recombinant strain causing an explosive epidemic in injecting drug users in Kaliningrad. AIDS. 1998; 12:1907–1919. [PubMed: 9792392]

Pozynyak VB, Pelipas VE, Vievski AN, Miroshnichenko L. Illicit drug use and its health consequences in Belarus, Russian Federation and Ukraine: Impact of transition. Addiction Research in Central and Eastern Europe. 2002; 8:184–189.

Rhodes T, Ball A, Stimson GV, Kobyshcha Y, Fitch C, Pokrovsky V, et al. HIV infection associated with drug injecting in the newly independent states. Eastern Europe: The social and economic context of epidemics. Addiction. 1999; 94:1323–1336. [PubMed: 10615718]

Rhodes T, Lowndes C, Judd A, Mikhailova LA, Sarang A, Rylkov A, et al. Explosive spread and high prevalence of HIV infection among injecting drug users in Togliatti City, Russia. AIDS. 2002; 16(13):F25–F31. [PubMed: 12218407]

Rhodes T, Sarang A, Bobrik A, Bobkov E, Platt L. HIV transmission and HIV prevention associated with injecting drug use in the Russian Federation. International Journal of Drug Policy. 2004; 15:1–16.

Rhodes T, Stimson GV, Ball A, Crofts N, Dehne KL, Khodalevich L. Drug injecting, rapid HIV spread, and the 'risk environment': Implications for assessment and response. AIDS. 1999; 13(Suppl. A):259–269.

Rhodes T, Stimson GV, Quirk A. Sex, drugs, intervention, and research: From the individual to the social. Substance Use & Misuse. 1996; 31(3):375–407. [PubMed: 8834267]

Skowronek R, Celinski R, Chowaniec C. "Crocdile" – New dangerous designer drug of abuse from the East. Clinical Toxicology. 2012; 50:269. [PubMed: 22385107]

Somlai AM, Kelly JA, Benotsch E, Gore-Felton C, Ostrovski D, McAuliffe T, et al. Characteristics and predictors of HIV risk behaviors among injection-drug using men and women in St. Petersburg, Russia. AIDS Education and Prevention. 2002; 14:295–305. [PubMed: 12212716]

UNICEF. The Monee Project CSS/CIS. Florence: UNICEF, International Child Development Centre; 1999. After the fall: The human impact of ten years of transition.

UNIDCP. United Nations International Drug Control Programme World Drug Report. New York: Oxford University Press; 1997.

United Nations. Economic Commission for Europe, Trends in Europe and North America 1996/1997. Geneva: The Statistical Yearbook; 1997.

United Nations Development. Human Development Report 1999. New York: Oxford University Press; 1999.