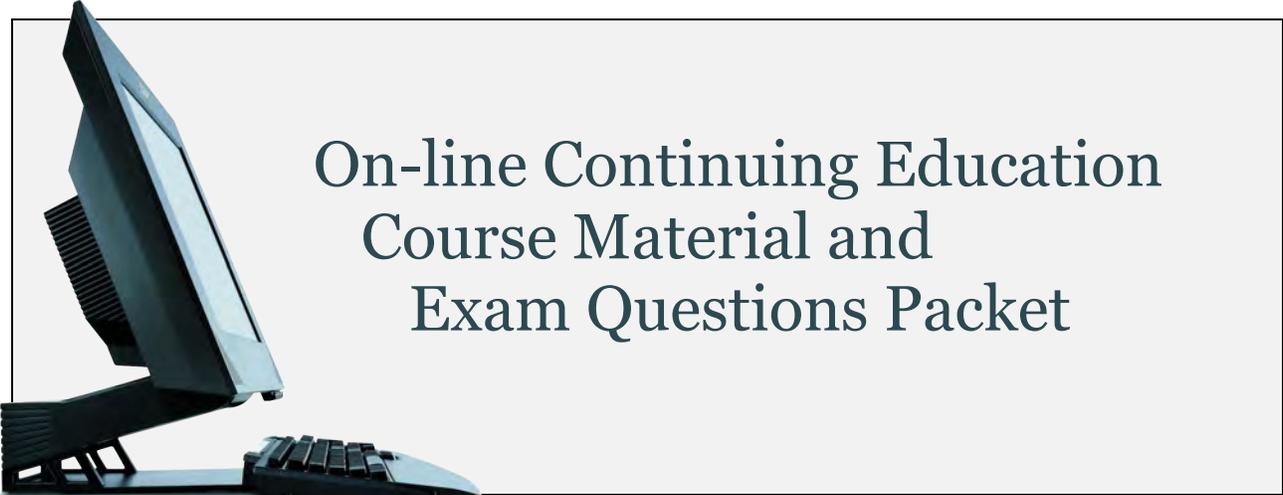




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On-line Continuing Education Course Material and Exam Questions Packet

Course No: CE-1726

Course Title: **Krokodil: A Monstrous Drug with Deadly Consequences**

Course Objective: As various drug trends continually surface in the United States and around the globe, this course examines the recent emergence of the recreational drug known as “krokodil” as an incapacitating and deadly threat to its users.

CE Credit Hours: 3.0 hours

Course Material: Included within this free on-line packet: Matiuk, D.M. (2014). Krokodil: A Monstrous Drug with Deadly Consequences. ***Journal of Addictive Disorders.***¹

Exam Questions: Twelve (12) multiple-choice questions.

Answer Sheet: Use the on-line Answer Sheet for automatic grading of your exam, and to automatically receive your Certificate of Completion by e-mail.

Recommendation: Review the exam questions before you view the course material. The Exam Questions are based upon the information presented in the course material. You should choose the best answer based upon the information contained within the course material.

GOOD LUCK!

¹ Course material reviewed and exam questions developed for this continuing education (CE) course by Breining Institute faculty member Sean T. Thiers, MSN, CRNA, RN, CCRN.



CE-1726: Course Exam Questions

These Exam Questions are based upon the information presented in the course material. You should choose the best answer based upon the information contained within the course material. A score of at least 70% correct answers is required to receive Course credit.

GOOD LUCK!

- 1) In 2007, the National Survey on Drug Use and Health showed that an estimated _____ million people internationally consume illicit drugs.

A: 85
B: 176
C: 208
D: 435

- 2) The addition of which opioid makes Krokodil unique?

A: morphine
B: codeine
C: fentanyl
D: meperidine

- 3) Compared to heroin, the effects of Krokodil last for a _____ period of time and are _____ potent.

A: longer; less
B: shorter; less
C: shorter; more
D: longer; more

- 4) FDA/DEA regulation states that Schedule 1 drugs, like desomorphine, have a:

A: low potential for abuse
B: high potential for abuse
C: medium potential for abuse
D: minor potential for abuse

- 5) The analgesic effect of 1 milligram of desomorphine is equivalent to _____ milligram(s) morphine.

A: 1
B: 2
C: 5
D: 10



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- 6) Krokodil use in Russia is becoming widespread, mostly due to its lower cost and ease of access. In fact, in 2011 there were an estimated _____ Russians abusing the drug.
- A: 100,000
B: 25,000
C: 150,000
D: 500,000
- 7) According to the Banner Poison, Drug and Information Center, a daily Krokodil user has a life expectancy of approximately how many years?
- A: 2
B: 4
C: 10
D: 8
- 8) Desomorphine gets its street name “Krokodil” because of its effects on the:
- A: nervous system
B: skin
C: teeth
D: heart
- 9) Many people struggling with drug addiction in Russia are unable to receive quality treatment *primarily* due to:
- A: poor public transportation options
B: a scarcity of effective rehabilitation programs
C: their unwillingness to seek assistance
D: the social stigma associated with addiction
- 10) The DEA feels it is unlikely that a Krokodil epidemic will occur in the United States because:
- A: Americans have easier access to heroin
B: the ingredients are unavailable in the U.S.
C: it is too expensive to produce
D: it is too expensive to transport



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- 11) The author suggests that _____ is one of the key factors that will work to curtail the use of desomorphine and other illicit drugs.
- A: hard work
 - B. scientific research
 - C. social awareness
 - D. medication
- 12) Side effects of desomorphine include open sores, scaly skin, phlebitis, gangrene, liver inflammation and _____.
- A: impaired cognitive function
 - B: blindness
 - C: bloating
 - D: shivering

JOURNAL

OF ADDICTIVE DISORDERS

Krokodil: A Monstrous Drug with Deadly Consequences¹

Danielle M. Matiuk, RAS

Introduction

Various drug trends are continually surfacing in the United States and around the globe which is no surprise considering in 2007, the National Survey on Drug Use and Health showed an estimated 208 million people internationally consume illicit drugs (Foundation For a Drug Free World, 2006). Bath salts, synthetic cannabis, “huffing,” nutmeg as a hallucinogen and even anti-energy drinks serve as a few examples of fads that have received some attention. However, krokodil, a deadly and incapacitating development is now receiving more attention throughout the globe, particularly in Russia, with several alleged recent cases in the United States. For many who suffer from addiction, they often feel drugs are a solution to escaping or numbing social and emotional troubles. However, with time and continued abuse, these drugs themselves become the individual’s worst predicament. For those who turn to krokodil, this predicament is swift acting and terminal.

Description of Krokodil (Desomorphine)

Krokodil, a crude production of desomorphine, is an opioid drug concocted much like methamphetamines whereby the user can produce it at home with a combination of ingredients. Similar to the production of methamphetamines, Krokodil is derived from iodine and red phosphorus. However, it is the use of codeine along with these ingredients that produces Krokodil. Specifically, codeine is mixed with toxic products such as iodine, gasoline, paint thinner, hydrochloric acid, lighter fluid and red phosphorus; the latter ingredient derived sometimes from the striking plate of match books since red phosphorus itself is less easy to obtain and more costly. Codeine pills frequently contain caffeine, paracetamol, or diphenhydramine which is also an opioid potentiator, enhancing sensitization. Tropicamide, found in over the counter eye drops, constitutes another ingredient krokodil users have been known to incorporate in order to enhance and/or lengthen the experience (Wikipedia.org, Krokodil. 2013). Judging from the aforementioned ingredients, the resulting byproduct is a highly toxic “homemade desomorphine” with many impurities and resulting physical dangers (National Library of Medicine. 2013). After much boiling and distilling, the resulting “grunge” is a caramel

¹ This copyrighted material may be copied in whole or in part, provided that the material used is properly referenced, and that the following citation is used in full: Matiuk, D.M. (2014). Krokodil: A Monstrous Drug with Deadly Consequences. *Journal of Addictive Disorders*. Retrieved [date retrieved] from Breining Institute at <http://www.breining.edu>.

colored, acrid smelling concoction that is injected into areas such as forearms, legs and even upper body regions where one can obtain vein access (Walker, 2011).

In fact, the name Krokodil is indicative of these physical hazards which include an attack on the soft tissues of the skin at the injection site resulting in open sores, phlebitis (vein injury) and even gangrene. Furthermore, continued use causes the skin to become scaly and rough much like a crocodile (Walker, 2011). In the absence of any medical attention, limbs can rot and amputation becomes a necessary procedure. Internally, due to the iodine content, the endocrine system and muscles can be compromised. High phosphorus levels result in bone damage. Nervous system impairment, liver and kidney inflammation may result from excess iron, zinc and lead – all byproducts of this chemically toxic homemade substance. Veins can virtually burn up and limbs decompose as a result of excess caustic chemical infiltration (Narconon.org/drug-abuse/desomorphine, 2013). Because Krokodil has an extreme analgesic effect, the user often physically and mentally fails to notice these deleterious consequences. Thus, mental impairment including speech impediments can follow resulting in one's inability to sustain normal cognitive functioning with possible brain damage (Lallanilla, 2013).

As Krokodil (desomorphine) is an opioid, it produces effects much like heroin, only more potent. However, these effects last for a shorter period of time, thus causing the user to quickly begin feeling the need for more. Heroin is felt for approximately four to eight hours, while Krokodil "highs" begin to diminish after one and a half hours. Moreover, the Krokodil user will likely begin to feel withdrawal shortly afterwards (Wikipedia, Desomorphine, 2013). Consequently, production is an ongoing "job." Krokodil takes thirty to sixty minutes for production so one can deduce that the individual is starting to make or "cook" more shortly following their injection of each dose.

From a legal standpoint, both heroin and desomorphine are prohibited, Schedule 1 drugs. FDA/DEA regulation states that Schedule 1 drugs have "...(i) no currently accepted medical use in the United States, (ii) a lack of accepted safety for use under medical supervision, and (iii) a high potential for abuse" (FindtheBest.org, 2013). Clinical data suggests that Heroin is classified as having a high incidence of dependency while Krokodil has a "very high" incidence of dependency. Typical heroin routes include inhalation, intravenous, oral, intranasal and intramuscular whereas Krokodil is characteristically routed intravenously (Wikipedia.org, Heroin and Krokodil, 2013).

Krokodil Chemistry & Pharmacology

Krokodil or Crocodil is the street name for desomorphine (dihydrodesoxymorphine; dihydrodesoxymorphine-D). Its formula, C₁₇H₂₁NO₂ has a molecular mass of 271.354 g/mol. Chemically, desomorphine and morphine are similar. However, morphine is a true opiate whereas desomorphine is a semi-synthetic opioid. Due to their structural likeness, it suggests that desomorphine is a potent mu opioid agonist (Erowid, 2013). According to the Drug Enforcement Administration (DEA), when studied on laboratory animals, desomorphine demonstrates stronger than morphine; three times the toxicity, and 10 times as effective as an analgesic. It also works quickly but does not last very long. A slow tolerance develops in rats receiving daily injection and constant dose. In humans, repeated dosing at short intervals in cancer patients has been shown to result in a high level of addiction liability (www.deadiversion.usdoj.gov, 2013).

Historical Data and Growth: Desomorphine

Patented in the United States in 1932, desomorphine had historical use in Switzerland. Specifically, under the brand name Permonid, it was found to produce a faster onset and shorter duration when compared to other pain relievers such as morphine. Desomorphine also initiated less sedative effects and seemed to have favorable post-operative results, such as reduced need for catheterization, less dizziness and decreased incidence of vomiting when compared to morphine. Medical studies continued to endorse desomorphine for traumatic cases due to its ability to provide a palliative effect on excitement or fear (National Library of Medicine HSDB Database. 2013). For example, 1 mg. of desomorphine was equivalent to 10 mg. of morphine for pain relief and sleep was produced by 91.8% of desomorphine patients compared to 80.5% for morphine patients. However, desomorphine was found to wear off quicker, cause faster withdrawal and it was concluded to have no real overall advantage over morphine (Eddy NB et al. 1957).

Geographic Growth and Specifics

Despite these developments and the obsolescence of desomorphine in a clinical or medical setting, it has resurfaced predominantly in Russia, the Ukraine and Georgia with the onset of use beginning around 2002-2003. Russia, Ukraine and all other former Soviet countries have a history of developing “homemade” opioid and stimulant drugs which are primarily injected. According to Grund et al., when Afghanistan started to import heroin into Russia, most notably in the late 1990’s, this served as a replacement to homemade drugs for a while and predominantly in the neighboring cities to the drug trafficking course. However, knowing that it was less expensive to obtain codeine, many drug users with limited funds and resources turned to krokodil. One particularly staggering statistic, suggesting the potential widespread harm desomorphine can produce, shows an estimated 2 million people in Russia who are injecting drugs of some sort into their bodies. To further illustrate and provide a comparison, in 2008, approximately 0.4% people use opioids in the Western world, whereas in Russia, this number escalates to 2.3% (Grund et al. 2013).

Before June of 2012, codeine was sold in Russia without the requirement of a prescription so it was relatively easy to purchase, along with the other over the counter ingredients. Moreover, the cost of manufacturing krokodil is much less expensive than heroin. In 2011, according to Erowid, ten over-the-counter codeine tablets cost 120 Russian Rubles (or \$3.71 USD). This is a comparable substitute to 500 Rubles (or \$15.46 USD) worth of heroin (Erowid. 2013). In the more deprived and low income or unemployed areas of Russia, this price difference proves to be a large reason why krokodil has become such a widespread problem in this country. In fact, according to the DEA, by 2009, desomorphine abuse was increasing among Russian young adults. By 2011, krokodil use in Russia was estimated at approximately 100,000 and in the Ukraine, roughly 20,000 (Grund, J.P. et al. 2013).

Sociological Aspects of Influence

Sociologically, desomorphine users, particularly in Russia, have chosen this route due to low cost and ease of access. Although most of the krokodil users would prefer heroin, krokodil produces a stronger effect and is highly addictive after repeated use. In small towns such as Tver, the ingredients are attainable and sold without a prescription. Although as of June 1,

2012, over-the-counter sales of drugs containing codeine (pentalgin, nurofen, solpadeine, etc.) have been banned in 21 regions of Russia, one can obtain a prescription (Ivan. 2012). Considering the nature of addiction and the individual's drive to obtain drugs in the midst of their cravings and/or withdrawal, one can surmise that codeine is still available to those who have a way of obtaining it and selling it on the black market or simply from one dealer to another. Just because a drug is illegal or requires a prescription does not preclude one with a drug dependency from finding alternative methods of attainment.

Prior to June 1, 2012, Russian pharmacies were making up to a 25% profit from the sale of codeine tablets, many of them knowing exactly what customers were using it for. For economic gain and survival in various downtrodden regions, these pharmacies turned a "blind eye" and knowingly sold more than the allotted amount to the same person. According to Erin, in his article, *Krokodil, Homemade Heroin of the Worst Kind*, one user recalls, "...I was trying to buy four packs, and the woman told me they could only sell two to any one person. So I bought two packs, then came back five minutes later and bought another two" (Erin. 2011). Pharmacies supporting this habit have enabled those addicted to Krokodil to perpetuate their dependency – one that gets increasingly harder to stop and with continued use is ultimately deadly.

As is characteristic in Russia, drug use often begins in the teenage years, particularly in the poorest and more isolated parts of the country. Both male and female users have been identified with no reported statistics on one gender dominating the other. In small towns such as Vorkuta, they face exceedingly cold winter weather, lasting an average of eight months each year. This results in boredom as teenagers are confined indoors with little entertainment. Drinking is prevalent, however, without employment, this habit becomes costly in the long run. Consequently, many of them turn to stronger drugs such as krokodil (Shuster, 2011).

Simon Shuster, in his article "*The Curse of the Crocodile: Russia's Deadly Designer Drug*," one 27 year old female Russian from Vorkuta describes how this epidemic exists in hundreds of towns and villages across northern Russia. She associated with about twelve other krokodil addicts stating that, "Practically all of them are dead now. For some it led to pneumonia, some got blood poisoning, some had an artery burst in their heart, some got meningitis, others simply rot" (Shuster. 2011). She is one of the more fortunate cases who, after being rushed to the emergency room, was offered detox at a drug rehab center in Chichevo (a village several hours east of Moscow). Such centers, however, exist sparingly in this country and are private, often church affiliated and not subsidized by the government.

Recent U.S. Presence and Reports

In 2011, the Drug Enforcement Agency (DEA) reported it was keeping an eye on Krokodil overseas but had not yet confirmed its incidence in the United States. In fact, DEA spokesman Rusty Payne told FoxNews.com back in June 2011, "We're looking at it overseas, but we have not seen it yet in the U.S." (Miller. 2013). However, several cases have since been recounted by health officials in the United States in 2012 and 2013.

At the Banner Good Samaritan Medical Center in Phoenix, Arizona, two such cases were reported in September 2013. Having been examined, it was reported by Dr. Frank LoVecchio, co-medical director at Banner Poison, Drug and Information Center, that "...some of

the chemicals they're using are very dangerous...they've used things like hydrochloric acid...paint thinners, gasoline and other stuff that includes phosphorus" (Mendez. 2013). He also stipulated that a daily krokodil user has a life expectancy of approximately two years, with the potential of death occurring before two years as a result of "overwhelming infection."

Such death served as reality for three Oklahoma cases, identified last year. Two of the victims were transported to the burn unit as a result of extensive skin damage but later died from the irreversible damage. A third male individual reportedly died in an Oklahoma City hospital as a result of what was thought to be krokodil use among other drugs found in his system including methamphetamine, morphine and amphetamine. Technically, he died of a heart attack, but presented all the symptoms of krokodil use, most notably, missing chunks of skin (Jeffries. 2013). Dr. William Banner, Director of the Oklahoma Poison Control Center warns, "This is an end game move. This is going to kill you" (Jeffries. 2013). For Oklahoma, this presents itself as an eye-opening trend because according to OKCFox.com, "Oklahoma is number one in the Nation for prescription addiction and opiate-abuse, and "krokodil" is made from prescription drugs" (Henry, K. 2013). Chicago has been the third United States city to report the presence of krokodil use. Three individuals, according to CBS Chicago, have received attention at a suburban Chicago hospital (Join Together Staff at drugfree.org. 2013) .

While some doctors and hospitals, particularly in the states described above, are expressing significant concern, others feel the United States is not at any sizable risk. Compared to the socio-economic and financial state in Russia and its poor suburbs, it seems unlikely the United States will undergo a krokodil epidemic quite to the extent we see in Russia. Moreover, heroin is still widely used and easily obtained in the United States. According to the National Survey on Drug Use and Health (NSDUH), teenagers have reasonably easy access to heroin. For example, 29.7 percent of 12th graders say it is easy to obtain. Even 8th graders (12.6 percent) say they can acquire heroin (HeroinAbuse.us. 2013). None-the-less, such a deadly, incapacitating trend should be recognized and discussed seriously; especially with those who are addicted and dependent upon opioids and who may do anything to maintain their habit.

Interviews and Responses from Individuals Addicted to Heroin

In the interest of obtaining current opinions and feedback on krokodil from actual heroin users, interviews were conducted at MedMark Treatment Center in Hayward, CA. MedMark Treatment Center provides methadone detox and methadone maintenance treatment and counseling to those who have become dependent upon heroin and/or synthetic opiates such as oxycodone. Four subjects who are patients, ranging in age, ethnicity, socio-economic status and gender, agreed to anonymously share their thoughts and responses to several questions pertaining to krokodil. It should be noted, subjects were also carefully selected based upon their perceived level of stability and commitment to their recovery as to not negatively or adversely affect those in early recovery, fragile states or high risk of relapse.

When asked if they knew what krokodil was, three out of the four had no knowledge of the drug. One male, middle-aged, Hispanic patient (Subject A) stated he saw some footage on the internet about krokodil several months ago. Subject A stated, "I saw some pictures and an article about it. It makes your skin rot and fall off. That's just sick." When asked if it would be an option in a desperate situation back when he was in the peak of his drug use, he replied,

“Man, I don’t know. I was pretty bad and did just about anything on the street. I guess if someone tried to sell me that or tell me about it, I might say ‘what the hell,’ especially if I was already strung out or desperate. I wouldn’t probably know about it, if I were still on the streets I might just go with it. I didn’t really care about much back then so I guess you could say it would’ve been possible.”

Subject A has over four years clean of all illicit drugs and is on the methadone maintenance treatment plan at the clinic. He presents as one who is now in a true maintenance stage of change and has re-built his life to where he now works, has independent housing, responsibilities and is a healthy, functioning member of the community. He was able to reflect back, however, and admit how addiction to drugs altered his abilities to make intelligent and safe decisions and avoid negative consequences. In fact, three of the four subjects responded similarly to this question in that they felt the severe nature of their addictions could have resulted in using a drug like krokodil simply to satisfy their cravings, especially under dire circumstances.

When interviewing a female, Caucasian patient in her 20’s (Subject B), with six months of abstinence from heroin (her drug of choice), she provided a response to the question, “If someone offered you a hit of heroine when you were still using, did you ever question where it came from or what exactly was going into your body?” Prior to her response, she was given a description of krokodil and how it was a cheaper, more dangerous heroin substitute:

“When I was using, it was always a full-time job to make sure I got my next fix and sometimes I would start to withdraw and I’d go to some of the worst parts of town – no matter how far I had to go. A lot of times I was so high that I actually would pass out and not remember, so yeah, I guess I never really wondered or cared about the stuff I was getting. I just knew I needed it. I can tell you a couple times it was really bad cuz I remember another girl pulling me into the shower once after I nodded off. I could have died.”

Subject B’s response indicates the danger involved with those who use drugs heavily to the point where they simply do not know or care what substances are being used to manufacture the drug. She stated that hearing about krokodil scared her and she is grateful it was not something anyone ever gave her because of its highly addictive nature.

Subject C, an elderly Black male with over ten years clean was a drug dealer and a heroin user in San Francisco. Having spent many years in prison, he is now on a taper plan to transition off methadone and is living a reformed life. When asked if he thinks heroin users would resort to krokodil if they knew how to make it he shares:

“I guess that all depends on the person. Me, I was dealing all kinds of stuff and some of it was cut with a lot of crap. I mean, I’ve had abscesses that were pretty bad and I used to see people with messed up arms, couldn’t find a vein. Some people just get like a ‘whatever’ attitude, they don’t care and all common sense is gone. All that matters is the drug, so it’s totally possible they’d use anything. As a dealer, I used only the good stuff and so I probably would never have been that hard up. I made good money too so I didn’t have to go there.”

This individual addresses the importance of recognizing personal circumstances and the drug user's unique situation, socially, demographically, emotionally and economically. In addition, Subject C acknowledges how drugs effect one's cognition and ability to "care" or have any "common sense." Thus, using something like krokodil in a dire situation may be a reality for those that have lost all sense of true reality.

The last patient, a bi-racial female in her 50's (Subject D) was asked if she thought she would ever contemplate krokodil when she was actively using heroin. She replied:

"Honestly, no way. I never used needles and you said krokodil is injected so no. Maybe it seems weird, but for as bad as I got, I never ever resorted to that. It scared me with all the diseases and actually, I have always been afraid of needles, shots – the pain you know? Isn't that crazy though to say that scared me when the whole drug thing shoulda scared me! I guess that's the addiction for you."

Subject D raises an interesting point around the lengths certain addicts will go, which seems to be dependent upon the individual, their experiences and their personal opinions. All four subjects, addicted to the same drug, have shared varying opinions and responses based upon their circumstances. Yet the commonality lies in the presence of an addiction. The National Institute on Drug Abuse defines addiction as, "...a chronic, often relapsing brain disease that causes compulsive drug seeking and use, despite harmful consequences to the addicted individual and to those around him or her" (DrugAbuse.gov. 2012). Consequently, as for the interviewees, addiction can take someone to the point of using something like krokodil with no regard to the potential magnitude of health dangers it presents.

Community Impact: Treatment, Medications, Rehabilitation

In Russia, where krokodil poses a larger, more widespread and threatening problem, the Federal Antinarcotics Service estimates roughly

1-1.5 million heroin users in Russia and it could be more (Ivan. 2013). Efforts to curtail heroin trafficking into Russia, specifically from Afghanistan, is an existing threat to national security. However, Gennady Onishchenko, a predominant Russian public-health official has provided a forewarning that possible increases in heroin flow into Russia may be activated from a withdrawal of troops from Afghanistan (Ivan. 2013). As krokodil is the homemade, less costly alternative, whether heroin availability increases or not, the substantial population of heroin users constitute a huge number of potential krokodil users.

According to Ivan in the article, *Russia's Heroin Habit*, regardless of the aforementioned, staggering number, Russian government offers little assistance and rehabilitation programs for those facing drug dependency issues. Moreover, the country has no state needle-exchange programs to help control and reduce the spread of HIV, AIDS and Hepatitis C. There are no medication assisted treatment programs (such as methadone or buprenorphine) and in general, those seeking treatment in hospitals are reportedly given substandard care or no attention at all (Ivan, 2013).

From a medication standpoint, there are no specific “pills” or “procedures” a krokodil user can be prescribed short of the necessary pain killers, hospitalization, tranquilizers, skin treatment and possible amputation in the worst cases. Withdrawal is at its extreme the first ten days, with continued symptoms and discomfort lasting up to and beyond a month or more. If feasible, the skin must be attended to due to tissue damage and open sores, yet when gangrene sets in, amputation is a necessity (Duncan at krokodildrug.com. 2013).

Attempts to facilitate more social awareness and justice to those in this vicious cycle in Russia, there are people who set up drug awareness foundations, such as the Andrey Rylkov Foundation for Health and Social Justice. This particular non-profit entity exists to provide support and a voice to those suffering with addiction and in need of help. Andrey began his mission volunteering at a Moscow street-harm reduction project in 2000. As a drug user, he worked towards an awareness of helping those with drug dependency and the diseases often accompanying it, such as HIV and AIDS. This foundation was temporarily shut down by Russian authorities in 2012 as a result of its promoting methadone to be “the most promising way” of battling heroin and opioid addiction (Ivan, 2013).

Recovery Clinics and Social Awareness

As a result, many people in Russia simply do not receive the help that those who struggle in other European or North American countries are more able to obtain through insurance, hospital support and availability of rehabilitation facilities including methadone clinics. For example, if one were to conduct an internet search on “Drug Addiction Rehabilitation Facilities in Russia,” very little options exist.

One such option is a Narconon center located in the Commonwealth of Independent states called Narconon Moscow. The original facility opened in 1994 with Narconon Dimitrovgrad, Narconon Ekaterinburg, Narconon Standard, Narconon South, Narconon St. Petersburg and Narconon Kiev in Ukraine (Narconon International. 2010). Although a non-profit organization, these facilities still cost money and this is often not a feasible option for those who have very little resources. Narconon provides a drug-free rehabilitation, using only vitamins and minerals to flush toxins out of the body along with counseling and life-skills therapy.

Russia covers over six and a half million miles with a population of nearly 142 million. According to Narconon, only about a third of Russia’s regions have treatment centers and those that exist are often very inadequate. Specifically, some of these facilities bear resemblance to jail, with substandard living quarters, bars and cell-like accommodations (Narconon.org. 2010). With the government doing little to assist with more aggressive development of rehab facilities, the Russian union of Evangelical Christians, Pentecostals in majority, run more than five hundred centers with no state support. These church organization rehabs constitute the largest provider of drug rehabilitation in Russia (Shuster. 2011).

Alcoholics Anonymous (AA), whose premise supports a 12-Step, spiritual approach to recovery, exists in Russia, yet mostly in the major cities such as Moscow and Saint Petersburg. Akin to Narcotics Anonymous, AA provides support and fellowship to those who suffer from addiction so people with alcohol and/or drug problems would be able to access this recovery support. However, considering the nature of the krokodil trend, AA might be difficult to attend due to the isolated locations and distance of the remote krokodil towns from these major

thoroughfares. Moreover, krokodil users would perhaps find it difficult to rely on this recovery source alone, simply due to the immediacy of their need to use and the extent of their addictive urgencies.

Such a grim portrait of recovery options suggests the need for greater social awareness, efforts and intervention towards challenging Russia's current views upon opioid substitution treatment (OST) and similar medically supervised, more humane treatment options. Currently, Narcanon describes Russian drug treatment technology, "narcology," as an "outgrowth of old Russian psychiatry" (Narcanon.org. 2010). Such limited philosophy does little to assist a community of heroin and krokodil addicts who require more hospital attention and rehabilitation therapy.

Warnings via social media, videos, articles and news stories have provided the Russian and worldwide public with information about krokodil in attempts to warn societies of the dangers this drug presents. Additionally, in 2011, President Dmitry Medvedev ordered websites explaining how to manufacture krokodil be closed down (Erin. 2011) yet some argue this does little to prevent what already exists and it is difficult to monitor all social media activity. However, it serves as a future preventative measure and sends a message of concern as well as distain for such websites.

In sending such alerts, our social media has done an exceptional job providing articles and documentaries about krokodil. Such awareness hopefully provides strong warning signals to the rest of the world. Graphic pictures and documentaries depicting the destitute, harsh reality of the day in the life of a krokodil addict have expectantly caused many individuals to become more aware. As one of the MedMark Treatment Center patients (Subject A) shared, "The pictures of rotting skin and seeing how sick they looked was an eye opener." With continued efforts, one would hope this deadly substance receives the attention it deserves on a political, public and governmental support level in Russia, most notably.

Projections

Where Russia is concerned, the future appears to be an uncertain one with respect to any significant eradication of krokodil and its usage, simply due to the nature of its homemade production and the general nature of addiction in those who suffer from this disease. Just as with any illicit drug, prescription or alcohol abuse, the individual agonizes with a disease that changes the brain in ways that promote further compulsive drug abuse. Consequently, quitting is challenging, even for those who have the desire to do so. Furthermore, the need to address the addict's medical, psychiatric, social and emotional problems is a unique process requiring dedication of the individual and proper rehabilitation services, which as discussed previously, are sparse in Russia as they continue to face limited progress in harm reduction strategies (Lyuba. 2013). To illustrate the magnitude of this situation, in 1985 the Russian Federal Services for the Control of Narcotics identified four regions in Russia that had more than 10,000 serious drug users. By the year 2000, more than thirty regions claimed roughly this same number of abusers (Narcanon.org. 2010). Due to a continuation of the old ideology about addiction as a criminal or moral deviance rather than a disease, Russia may have a ways to go in achieving adequate results and progress towards addiction treatment and therapy.

In contrast, the United States and other European countries have a more accepting stance on those with the disease of addiction. Health care, for example, offers counseling and rehabilitation therapy for those covered with health insurance. Moreover, we increasingly see the disease of addiction in the media and this often paves the way to better degrees of acceptance around its legitimate diagnosis rather than it being due to “weakness” or being “deviant.” Still, considering the ease of manufacture, the potency of high and the similar production process to methamphetamine, which is quite prevalent in the western world, it behooves the United States to have an awareness for this phenomenon (Medtox Journal on Drug Abuse Recognition. 2012). As codeine is available only by prescription in the U.S. and heroin is generally not as difficult for the U.S. population to obtain, the Drug Enforcement Agency (DEA) feels that our country is not likely to experience a krokodil epidemic (Sullom. 2013). Nonetheless, Rusty Payne, spokesman for the DEA reports they are,

“...aware of and tracking the nationwide reports of alleged abuse of the controlled substance desomorphine that is found in the drug krokodil. To date, none of our forensic laboratories has analyzed an exhibit to contain desomorphine. A sample sent to our Chicago forensic laboratory that was suspected to be krokodil was actually heroin” (Sullom. 2013).

Conclusion

Drug trends continually prove to be an ongoing source of concern in our own local communities as well as worldwide. Whether they originate as a result of factors such as socio-economic conditions, political or governmental actions, demographic factors or simply supply and demand issues, they represent a global phenomenon of drug use and/or abuse which continues to be an issue for millions of people.

Sadly, Krokodil is one such trend that not only debilitates one’s mind and body, but it has the power to abruptly end lives due to its sheer corrosive nature. Addiction dictates that despite these horrific consequences, those who suffer from this disease without help will likely be numb to and indifferent towards their fate. However, just as with any addiction, the addict or user carries their own unique social, emotional, physical, biological and environmental sigma which all serve as areas affecting the ability of the individual to seek help, maintain help or even have access to support in the first place.

As our societies are faced with increased, varying drug trends, much can be done locally in more developed countries such as the United States, to address these risks. Family support and involvement, school programs and drug education, hospital support, Employee Assistance Programs (EAP) at work and social media advertising can all facilitate continued awareness in order to help prevent or at least decrease the growth of new and often dangerous drug fads within our communities.

For countries such as Russia, the quality of social support, educational tools, hospital backing (or even participation), EAP’s and overall rehabilitation involvement may be less prevalent or successful. Fortunately, a multitude of efforts pertaining to social awareness through the media, internet and non-profit organizations have been doing their best to make their country and others aware of this potentially epidemic situation. Hopefully, the Russian foundations, churches and social media will continue to rally for support towards recovery and

rehabilitation from krokodil, a literally monstrous drug illustrating addiction at its worst with deadly outcomes.

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