REVIEW ARTICLE

Methamphetamine in the Czech Republic

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SUMMARY: *The Czech Republic has a relatively long tradition in the addictive and problem use of methamphetamine, which is called "pervitin" locally. This paper attempts to provide as complex a picture of this phenomenon as possible by analyzing what is known about the Czech methamphetamine situation through scientific monitoring and research. It begins with a brief historical overview and then utilizes five key indicators (surveys, treatment demand, problem drug use estimates, blood borne diseases, and mortality) and some of the core indicators (namely, drug related crime, price and purity data, and estimates of market value) of drug epidemiology that were developed by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). By summarizing and carefully interpreting this data, the specifics of the Czech pervitin scene are described and future research directions are identified.*

KEY WORDS: METHAMPHETAMINE – ILLICIT STIMULANTS – HISTORY – TRENDS – USE – PRODUCTION – TRAFFICKING – CZECH REPUBLIC

1 INTRODUCTION

Methamphetamine, a powerful stimulant drug, was first synthesized from ephedrine under the name "pervitin" by A. Ogata in Japan (Ogata, 1919). Similarly to amphetamine (Benzedrine and Dexedrine[1]), its medical and paramedical use increased in the 1920s and 1930s as well as during World War II, when powerful stimulant drugs were used by military troops. Amphetamine (commonly known as Benzedrine) was preferred by the Allies,[2] and methamphetamine by the Axis[3] states – primarily Germany[4] and Japan. The first post-war wave of methamphetamine and amphetamine use in civilian populations appeared due to redistribution of the huge war surplus in the U.S. and Europe in the late 1940s. The second wave occurred in the 1950s and

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early 1960s and was driven by pharmaceutical companies that eagerly promoted the two types of amphetamine drugs as stimulant and anorectic medicaments (Case, 2005).

Recently, the worldwide production of illegal methamphetamine and amphetamine (ecstasy and ecstasy-like drugs are not included in the figures) is estimated to be as high as 332 metric tons per year with 27 million recent users.[5] Of such users, it is estimated that 2.7 million live in Europe, 4.3 million in the Americas, 16.7 million in Asia, 1.8 million in Africa, and 600 thousand in Oceania. According to the UN, Oceania is the most afflicted region (3 % of the population aged 15-64 are thought to be users), followed by East and Southeast Asia (1.2 %) and North America (1.1 %) (United Nations Office on Drugs and Crime [UNODC], 2006).

According to a recent review, the use of amphetamine-type drugs is widespread in nine countries: Australia, New Zealand, China, the Czech Republic, Japan, the Philippines, Sweden, Thailand, and the U.S. (Advisory Council on the Misuse of Drugs [ACMD], 2005).

In Australia, the amphetamine-type drug users shifted their preferences from amphetamine to methamphetamine in the late 1990s; currently methamphetamine represents the most popular illicit drug after marijuana, having replaced heroin during the "heroin drought" of 2001 (Longo, Henry-Edwards, Humeniuk, Christie, Ali, 2004). In New Zealand, increases in methamphetamine abuse occurred only as recently as 1998 through 2002. In Sweden (historically a country that prefers "stimulants"), amphetamine has prevailed over methamphetamine up to the present (Statens Folkhälsoinstitut, 2005). In Japan, the prevalence of methamphetamine abuse since WWII is not known, although the drug remains a matter of social concern and law enforcement priority (see, e.g., Suwaki, 1991), and indirect indicators suggest a recent sharp rise of its consumption (Yamamoto, 2004). As for China, no reliable data on methamphetamine ab/use is available, although that country's problem is generally seen as being severe (Kulsudjarit, 2004). During the 1990s and early 2000s, Thailand experienced an epidemic of methamphetamine use, which has affected the entire region (Kulsudjarit, 2004). Finally, the recent rapid spread of methamphetamine from the West Coast to the East Coast through the rural midlands of the U.S. has also been described (see, e.g., Tanne, 2006).

In "Western" culture, there has been an obvious increase in methamphetamine use in recent years. In North America, this development is usually traced to the early 1990s and continues today, as reflected in treatment episode increases from 10 treatments per 100,000 aged 12+ in 1992 to 64 per 100,000 in 2004 (Substance Abuse and Mental Health Services Administration, Office of Applied Studies, 2005).

Similarly, during Australia's "heroin drought" of 2001, an increase in the use of stimulants (that is, cocaine-type drugs and methamphetamine) was documented (Bush, Roberts, Trace, 2004); when the heroin supply returned to normal, the problem use[6] of (meth)amphetamines remained as high as 1% or more of the adult population in 2005 (McKetin, McLaren, Kelly, Hall, Hickman, 2005).

Thus far, the claimed increase in methamphetamine and amphetamine use has not been reflected in treatment demand in most EU countries, although surveys of recent use estimate that about 6% of young people between 15 and 24 years of age use these drugs (European Monitoring Centre for Drugs and Drug Addiction [EMCDDA], 2005). The Czech Republic remains a significant exception in this situation – with its history of epidemic methamphetamine (both recreational and problem) use that dates back to 1970. Use in the Czech Republic was never concentrated in any specific minority (as it has been with the club culture in the U.S. – e.g., men having sex with men [MSM] on the West Coast and elsewhere) or cultural group (as it was with the London "Teds" and with biker gangs on the U.S. West Coast in the 1960s, and more recently with night clubs in some European countries) or ethnic social group (such as Latinos in some U.S. states and young rural populations in the middle U.S.).

1/ Both Benzedrine [l-amphetamine] and Dexedrine [d-amphetamine] are made of benzol benzylmethylketone (P2P).

2/ Originally Great Britain, France, and Poland declared war on Germany in September 1939; the states of the British Commonwealth (Canada, Australia, Newfoundland, and New Zealand) declared their war on Germany separately the same day. The Allies (Norway, the Netherlands, Belgium, and Luxembourg, the United States, the Soviet Union and, among others, Czechoslovakia) joined the war. Altogether 26 nations joined the anti-Axis declaration of the United Nations in 1942.

3/ "Axis Berlin-Roma" later was joined by Japan. During WWI, several satellites (mostly occupied) joined: Hungary, Romania, Slovakia, Bulgaria, and Yugoslavia, supported by Thailand and Finland. Altogether, some 20 states directly or loosely participated in the Axis, including puppet states such as Vichy France, the second Philippines republic, the "reorganized government" of China, and the like.

4/ For example, now it is considered as proven that Adolf Hitler was given an injection of pervitin and glucose by his personal physician Dr. Theodor Morell "on any occasion when he needed a boost" (Doyle, 2005).

5/ In accord with the UNODC, a somewhat broad operational definition of "recent use" is employed here and is identical to "prevalence of (at least one) use within last year."

6/ "Problem drug use" is a concept originating from the Pompidou Group that has operated within the Council of Europe since 1980 (see http://www.coe.int/ T/dg3/Pompidou/default_en.asp). This concept was eventually adopted by the EMCDDA (http://www.emcdda.europa.eu) and is standardized as one of the "five key indicators of drug epidemiology" in the EU and elsewhere.

The definition of "problem drug use" involves intravenous drug use (IDU) orlong-term/regular use of opiates, cocaine, and/or amphetamine. This definition explicitly excludes the use of cannabis and ecstasy (EMCDDA, Institute for Therapy Research, 1998).

2 HISTORY OF CZECH METHAMPHETAMINE

2 /1 Communism

The use of illegal drugs is by no means a new phenomenon in the history of the Czech Republic (and former Czechoslovakia); these practices were well documented before WWII, reemerged after the war, and continued after the communist putsch of 1948 for the next 40 years until the fall of communism in 1989 (Zábranský, 2004b).

In this "qualitative" sense, the Czech Republic did not differ significantly from the rest of the world, experiencing its own unique waves of increases and decreases in the use of psychotropic substances. The Czechs differed, however, with regard to the spectrum of drugs used. The "Iron Curtain" effectively blocked the movement of persons and commodities, including psychotropics, across borders. Consequently, those interested in altering their consciousness with psychotropic substances in Czechoslovakia had to look for drugs that were not supplied from abroad. In the first two decades of communist governance, the abuse of potent psychotropic substances was mostly limited to (legal) alcohol, often combined with pharmaceuticals containing opioids, and to stimulant pharmaceuticals. Several authors reported massive abuse of the pharmaceutical anorectic stimulants Fenmetrazine and Dexfenmetrazine. These pills, originally taken mostly by university students for memory enhancement purposes, spread into the general population (including "junkies" who took them orally and intravenously) and were readily available on the black market, such use peaking during the early 1960s (see, e.g., Janík, Dušek, 1990). LSD that had been produced pharmaceutically in Czechoslovakia was also abused beginning in the 1960s, although this phenomenon was rather rare (Janík, Dušek, 1990). A real epidemic of abuse of pharmaceutical drugs was represented by the introduction of over-the-counter saridon-type analgesics such as Algena® in the early 1960s (containing aminophenazone, phenacetine, caffeine, and Phenobarbital), and other analgesics like Alnagon® (containing pure codeine plus acetylsalicyl acid, caffeine, and Phenobarbital) in 1964. The skyrocketing consumption of Alnagon® had a profound market impact, resulting in a shortage of codeine needed for domestic pharmaceutical production in the early 1970s. Another important trend can be found in widespread abuse of ephedrine-containing anti-asthmatics such as Yastyl[7] within the Czech criminal and prison subcultures (Škutina, 1969). Finally, benzodiazepines, barbiturates, and hypnotics were also abused in mass quantities during the communist regime (Nožina, 1997).

By the early 1970s, the drug scene in the bigger cities of Czechoslovakia, especially in its western part (which is now the Czech Republic), took place within small groups – "squads" – with hierarchical organizations that worked collectively to obtain psychotropic pharmaceuticals for nonmedical use. Those highest in these hierarchies usually possessed specialized knowledge about how to extract psychotropic substances from the pharmaceutical drugs and/or how to prepare more potent substances using those pharmaceuticals. For example, the production of a homemade opiate, called "brown" (hydrocodone, usually with some adulterants), occurred in some of those squads that used codeine-containing pharmaceuticals for its production.

According to the oral histories provided by Czech drug users, in the early 1970s one of the "capos" of a Prague squad whose nickname was "Freud" (an actual person whose full identity is known through police registration), and who had finished several semesters of chemistry studies at a technical university, rediscovered a simple process for the production of "crank"[8] methamphetamine (basically by ephedrine reduction), adjusting the formula so that he was able to exclusively use freely available chemical agents. "Freud" also identified freely available pharmaceuticals that contained high percentages of ephedrine; in the 1970s and 1980s, the most prominent base for simple ephedrine extraction was the anti-cough pharmaceutical drug, Solutan®. Regardless of whether "Freud" was the first or one of the first "cooks," the know-how of methamphetamine (pervitin) production spread quickly and widely – especially in the western part of Czechoslovakia – and marked a new phase in Czech drug history.

One consequence of these early events was further specialization among the "squads." The participants in such groups played different roles; those working in hospitals (nurses, students, maids) supplied the squads with raw pharmaceuticals (mostly large amounts of "Solutan") for further production, others were responsible for obtaining oven glass, catalyzers, and the like (see, e.g., the vivid depiction of such a squad in the fact/fiction book, John, 1986). This "specialization," coupled with the virtual impossibility of obtaining drugs such as "brown" and pervitin outside those groups further strengthened – in the time of communist-induced social leveling – the social inclusiveness of the squads. We know, for example, that the squads included a wide range of youths and young adults from the families of workers, intellectuals, and the governing members of the communist party.

7/ Yastyl® also contains atropine - delirogen that has psychotropic effects, too.

8/ There are two forms of methamphetamine: (a) "crank" methamphetamine (often referred to as "real pervitin"), consisting of tiny granules that have the appearance of powder, which is injected or snorted and the (b) "crystal meth" or "ice" that consists of large crystals and is usually smoked. The latter is not common in Czech Republic.

In the remaining years of communist rule, methamphetamine remained the hegemonic leader of the Czech illegal drug scene, accompanied by the much less widespread abuse of "brown" (see above) and the "semi-legal" misuse of pharmaceutical drugs either alone or in combination with alcohol, which was remarkably cheap in the communist era. Because of the manner of illicit drug production and the structure of the drug scene in the form of largely isolated cells (squads) with rather scarce mutual contacts, the commercial black market remained underdeveloped. This is illustrated by the 1986 statistics of the Czechoslovak (communist) police: altogether, 1,890 people were arrested for drug crimes (drug trafficking, drug possession, production, and/or possession of tools or materials for drug production), while only six of these persons were arrested for a drug sale (cited in Vantuch, 1990).

● 2 / 2 After the Velvet Revolution (1989)

With the fall of communism and the Iron Curtain, the cross-border movement of persons (and commodities) multiplied quickly, causing deep social and economic changes in society, including its drug scene. First of all, the distribution chains changed substantially – the return of market "supply and demand" principles has hit all markets including drug markets that have opened up in order to attract new customers. Interestingly, whereas imported heroin almost completely pushed out domestic homemade and pharmaceutical opiates within the first three years after the fall of communism (see Zábranský, 2004a), no real competition emerged with regard to pervitin. Even if significant amounts of cocaine were regularly seized by Czech customs in the early 1990s – specifically at Prague's airport – according to customs intelligence, virtually all of the cocaine was designated for transit to Scandinavian and West European countries, regardless of which ethnic/national[9] group of smugglers was involved (Marek, B: author's personal communication with ex-head of the Drugs and Weapons Department of the General Directorate of Customs, 2002). Several hypotheses have been raised concerning why cocaine has not yet been popularized in the Czech drug scene and specifically why crack cocaine never appeared among the Roma minority, a group that has otherwise been badly hit by problems related to alcohol, heroin, and solvents abuse.

According to the speculations of drug experts, one major explanation relates to the high price of cocaine in Europe (Mravčík et al., 2006). Although this might help to explain the extremely low availability of powder cocaine, however, it will not work for crack cocaine for which the effective dose is comparatively much cheaper worldwide. A complementary explanation, and one favored by the author of this paper, is that the good market position of pervitin in all social segments has left little space for another stimulant drug.

The current position of methamphetamine in the Czech Republic can be characterized as follows:

1. The lifetime prevalence (LTP) of pervitin use in the Czech population aged 18 to 64 is 2.5%; the drug is concentrated among the younger male population (6.2% of males aged 18 to 34).
2. Methamphetamine is the fourth most commonly used illicit drug (after cannabinoids, solvents, and ecstasy) among 16-year-old students (4.2% in 2003).
3. Methamphetamine abusers represent 60% (2,605 patients and clients) of those who asked for (medical and/or nonmedical) treatment for the first time in 2005.
4. Of all problem drug user estimates in the Czech Republic from studies using different statistical techniques, methamphetamine users represent 64% (approximately 20,500 of 32,000 persons) (Mravčík et al., 2006) of the total.
5. Injecting methamphetamine users are on average 35% anti-HCV positive (Zábranský, Mravčík, Korčišová, Řehák, 2006).
6. Methamphetamine is the third single drug causally involved in fatal overdoses in the Czech Republic 2005.
7. The share of persons who allegedly committed methamphetaminerelated primary drug crimes was as high as 53% of all 2,128 persons against whom legal action was taken by the police in 2005 (followed by 32% of persons prosecuted because of cannabis-type drugs offenses and 7% of heroin related ones) (Mravčík et al., 2006).
8. Methamphetamine seized by Czech customs and police in 209 seizure cases in 2005 (a total of 5.31 kg) (National Police Drug Squad [NPDS], 2006) represents approximately 0.14% of estimated domestic consumption for that year (3.7 metric tons) (based on data in Mravčík et al., 2006; Petroš, Mravčík, Korčišová-Petrošová, 2005).
9. The retail value of estimated methamphetamine consumption in the Czech Republic was 3.1 billion Czech crowns (approximately 136 million USD) in 2003, 43% of which is estimated to have been produced by self-suppliers and thus was never really a part of the black market effectively (Vopravil et al., 2005).

● 2 / 3 Prevalence of methamphetamine use in the Czech population

In 2005, pervitin remained the most widespread "problem drug" by far in the Czech Republic – and the third most popular illegal drug overall (after cannabistype drugs and hallucinogens including ecstasy).

9/ Rapidly, small "waves" of South American and Caribbean, Nigerian/Gambian/ Tanzanian, and Kosovo-Albanian "drug mules" were arrested either at the Prague airport or within related police and/or customs drug squad operations between 1990 and 1998.

Table 1
Selected use prevalence indicators for the Czech Republic 2003 (Source of data: Brožová and ÚZIS, 2006); all figures are in percentages

		Age 18–64			Age 18–34		
		males	females	total	males	females	total
Any illegal drug (pharmaceuticals without prescription not included)	Lifetime prevalence	28.3	16.4	22.3	50.4	32.7	41.6
	Last year prevalence	13.9	6.8	10.4	27.7	14.6	21.2
	Last month prevalence	7.8	2.8	5.3	15.5	6.0	10.7
Pervitin	Lifetime prevalence	3.6	1.5	2.5	6.2	3.1	4.7
	Last year prevalence	1.2	0.4	0.7	2.1	0.9	1.5
	Last month prevalence	0.4	0.1	0.2	0.8	0.1	0.5
Sedatives or tranquillizers without prescription	Lifetime prevalence	42.6	51.9	47.2	34.8	43.3	39.1
	Last year prevalence	29.9	40.7	35.3	21.6	32.2	26.9
	Last month prevalence	16.5	25.9	21.2	10.3	18.0	14.2

● 2 / 4 Methamphetamine use in the general population

The Czech Republic has a relatively long tradition in regards to the administration of general population surveys targeting drug use, especially when compared with other post-communist countries. However, during the 1990s and early 2000s, these early surveys used different sets of questions and relatively small quota samples (see, e.g., Glasová, Centrum pro výzkum veřejného mínění, 2002). Consequently, their representativeness and comparability are rather limited. Historically, the first Czech population survey that used the established international standards for this type of study (namely, the standards of European Monitoring Centre on Drugs and Drug Addiction [EMCDDA, 2002b]) took place in 2004 (Brožová, ÚZIS, 2006) (*Table 1*).

According to this comprehensive study that utilized a stratified randomized sampling design of Czech residents aged 18 to 64, as many as 2.5% of the respondents had used pervitin at least once during their lifetime, with a much higher figure reported by younger cohorts (4.7% of respondents aged 18 to 34) and males (6.2% of males aged 18 to 34). The prevalence of such use in the last 12 months was 0.7% (2.1% of males aged 18 to 34), and the prevalence of pervitin use in the last month was 0.2% (0.8% of males aged 18 to 34) in 2004. Among all of these prevalence indicators, pervitin consistently scored as the third most popular illegal drug after cannabinoids (20.6% of lifetime prevalence, 9.3% of last year and 4.8% of last month prevalence in the surveyed sample) and hallucinogens including ecstasy (8.9%, 4.3%, and 1.5% respectively). Nonprescribed psychotropic pharmaceuticals were not included in this summary.

In the general population aged 18 to 64, females consistently scored lower for every prevalence indicator for illegal drugs including pervitin. The only group of psychotropic substances for which females reported higher use rates than males were sedatives or tranquillizers without prescription. We see a similar situation in the subpopulation aged 18 to 34 (also called "younger adults"), although the gender differences are slightly lower.

● 2 / 5 Methamphetamine use in the school population

The nationwide school surveys conducted in the Czech Republic follow the standards of all ESPAD surveys, and the country has participated in all three waves of the ESPAD studies from their first administration in 1995. Consequently, there exists among 16-year-old Czech students a well documented trend of their experiences with methamphetamine and other drugs (*Figure 1*).

Interestingly, where we see an obvious and stable increase in the lifetime experience and repeated use of all drugs (attributable mostly to cannabis and, to a far lesser extent, to ecstasy [see Csemy in this issue]), the use of pervitin increased until the late 1990s and then stabilized or slightly decreased. This trend – the divergence of experience and repeated/recreational use of cannabis among students on the one hand, and that with riskier drugs on the other (that is, pervitin and heroin in the Czech environment) was well described in an earlier study that processed the results of other national school surveys after adjusting their data to meet ESPAD standards (Mravčík, Zábranský, 2001).

One aspect of this analysis is especially interesting: contrary to common opinion, Czech girls tend to experiment with high-risk drugs more than their male counterparts; for girls, the lifetime prevalence (LTP) for pervitin was 2.0% (1995), 6.0% (1999), and 5.0% (2003), whereas for boys the LTP for the same years was 1.7%, 5.0%, and 3.2%. We see a similar situation with opiates, albeit with lower overall prevalence rates and lower differences between genders (including heroin): 1.7%, 4.7%, and 2.9% for girls and 1.7%, 4.1%, and 1.8% respectively for boys. With these exceptions noted, other illegal drugs follow the gender stereotypes of

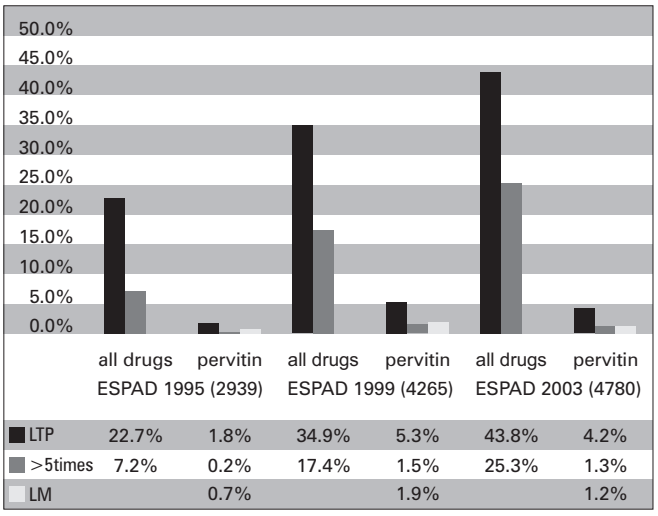


Figure 1

Selected prevalence indicators in ESPAD studies in the Czech Republic

LTP = lifetime prevalence

>5 times = use more than 5 times in the lifetime

LM = last month prevalence

The numbers in brackets (after the year of the ESPAD survey) show the numbers of valid questionnaires

"more curious and risky behavior prone boys." For further data on the ESPAD studies completed between 1995 and 2003, see Csemy et al. in this issue.

● 2 / 6 Methamphetamine and the club nightlife scene

In the night-life/club/dance scene the use and abuse[10] of legal and illegal substances is substantially higher than it is among the general population. It is well known from different studies conducted throughout the Western world that "partygoers" tend to display higher levels of substance use and abuse than other individuals in their age cohorts; typically, elevated use of alcohol, tobacco, marijuana, ecstasy (MDMA and other hallucinogenic amphetamine), cocaine, hallucinogens and amphetamine – and of those mostly methamphetamines – has been reported (Senn, Bucheli, Schaub, Stohler, 2007; McCambridge, Winstock, Hunt, Mitcheson, 2007; Kelly, Parsons, Wells, 2006; Maxwell, 2005; Koesters, Rogers, Rajasingham, 2002; Tossmann, Boldt, Tensil, 2001).

In the Czech Republic, several studies using quantitative or qualitative methodologies have targeted partygoers (see, e.g. Csémy, Sovinová, Komárek, 2000; Kubů, Křížová, Csémy, 2000); perhaps the most comprehensive studies are represented by Kubů, Škařupová, and Csemy (2006), which took place in 2000 and 2003. The studies utilized cross-sectional designs and processed questionnaires that had been completed by self-nominated samples of viewers of major dance/hiphop/ techno/jungle etc. websites (electronic questionnaires), the readers of dance scene magazines and fanzines, and participants at dance parties with audiences greater than 5,000 (paper questionnaires). Altogether, 1,271 and 1,652 young persons participated in the surveys completed in 2000 and 2003, respectively. The mean age of the participants was 18.1 for females (n=379) and 22.0 for males (n=892) in 2000, and 20.3 (n=611 females) and 21.8 (n= 1,041 males) in 2003, respectively.

The representation of females was significantly higher in younger cohorts in both waves of the study (e.g., in the 15- to 18-year-old cohort the F:M ratio was 1:1 in 2003).

In this sample, 40.6% of the surveyed persons reported at least one use of pervitin in their lifetime. Other drugs reported included alcohol (98%), cannabis (92%), tobacco (91%), caffeine (80%), ecstasy (97%), LSD (45%), and magic mushrooms (43%). The last-year prevalence of pervitin use was 25% in this group (i.e., more than 60% of those who had ever tried it), and last month prevalence was as high as 14% in 2003. The average number of consumption occasions in the last months for pervitin was 0.62 (median=0.0; SD=1.7).

Interestingly, all the prevalence indicators for pervitin are significantly higher for females than for males in this 2003 study – contrary to what is believed to be a common situation in the general population and also in the population of problem drug users, where males clearly prevail (*Table 2*).

Not surprisingly, in this preselected population the acceptability of pervitin is quite high (acceptable for 60% of respondents, attractive for 5.6%). Among this group, it is the eighth most acceptable drug after alcohol, cannabis, tobacco, caffeine, XTC, LSD, mushrooms. For both genders, the mean age (and modus and median) of first pervitin use was 18 (13.4 for alcohol). The frequency of pervitin use in this sample was strongly correlated with the frequency of clubbing (party going).

Only a minority of those with at least one experience with pervitin have ever used it intravenously (17.4 %), the remaining 82.6% have sniffed it exclusively. Similar to the situation for other subgroups of pervitin users in the Czech Republic, the smoking of methamphetamine is virtually nonexistent among partygoers.

● 3 PROBLEM USE OF METHAMPHETAMINE

In the late 1990s, the Czech Republic made its first attempt to estimate the extent of problem drug use in the country, using a combination of capture-recapture, nomination, and multiplicator methods[11] (Mravčík, Zábranský, 2002). Since then, several estimates have been made by the Czech Na-

10/ For this paper, the term "abuse" is used for these patterns and cases of drug use, where harm - individual or public - is caused by such use.

11/ For further description of methods used for estimating the prevalence of problem drug use, see EMCDDA, Institute for Therapy Research, 1998.

Table 2
Statistically significant ($p<0.05$) gender differences in prevalence indicators of clubbers/partygoers in the Czech Republic (Kubů, Škařupová, and Csemy, 2006)

Drug	Lifetime prevalence (%)		Last year prevalence (%)		Last month prevalence (%)	
	males	females	males	females	males	females
alcohol	n.s.	n.s.	n.s.	n.s.	85.5	81.3
cannabis-type drugs	n.s.	n.s.	n.s.	n.s.	67.8	58.6
mushrooms	45.8	38.0	22.3	16.9	4.4	1.8
benzodiazepines	9.0	15.7	2.1	6.5	0.8	2.0
pervitin	***n.s.***	***n.s.***	***20.8***	***31.8***	***11.4***	***17.8***
caffeine	78.0	82.8	60.5	68.7	44.1	50.4
cocaine	18.5	22.7	n.s.	n.s.	n.s.	n.s.
LSD	47.0	42.1	n.s.	n.s.	n.s.	n.s.

Table 3
Prevalence estimates of problem drug use in the Czech Republic using a combination of capture-recapture and multiplicative methods

Year	Problem drug users		Problem opiate users		Problem pervitin users		Injectors	
	Abs.	Per 1,000 persons aged 15–64	Abs.	Per 1,000 persons aged 15–64	Abs.	Per 1,000 persons aged 15–64	Abs.	Per 1,000 persons aged 15–64
2002	35,100	4.89	13,300	1.85	21,800	3.04	31,700	4.41
2003	29,000	4.02	10,200	1.41	18,800	2.61	27,800	3.86
2004	30,000	4.14	9,700	1.34	20,300	2.80	27,000	3.73
2005	31,800	4.37	11,300	1.55	20,500	2.82	29,800	4.10

tional Focal Point on Drugs and Addictions (NFP), the results of which are summarized in *Table 3*.

The number of both problem drug users and problem pervitin users appears to be quite stable, with confidence intervals of all estimates overlapping around 30,000 for problem drug users and 20,000 for problem pervitin users. In other words, pervitin users represent approximately two thirds of all problem drug users in the Czech Republic, and the drug itself retains its position of the major problem drug and major injected drug. This phenomenon has deep roots in the market scheme and profound consequences for treatment. The estimated male/female ratio of problem pervitin users is identical to the ratio we see in pervitin users using low-threshold services: approximately 2(M):1(F).

● 3 / 1 Blood-borne diseases in pervitin injectors

The HIV rate is extremely low in the population of Czech drug users; in this welltested population, only 41 drug users have tested positive; another 13 positives were found among drug users who were males having sex with other males. In 2003, a major semirepresentative study on the seroprevalence of hepatitis C virus antibodies in IDUs was completed; according to the results of this study, the seroprevalence rate was 35 % in the sampled population (n=760). No statistically significant differences were found in these rates between injectors of pervitin and those using heroin; the only drug-related statistically significant predictor was the use of "brown" or some other homemade opiate; nevertheless, this predictor was strongly correlated with (and according to more complex statistical analysis represents a proxy indicator for) extreme length of a drug injecting career (Zábranský et al., 2006).

● 4 METHAMPHETAMINE-RELATED TREATMENT

The monitoring of treatment demand (for detailed methodology, see Vincente, Hartnoll, Simon, Pfeiffer, Stauffacher, 2000) in the Czech Republic began in 1995 – first concentrating on "those who were treated in the given year for the first time in their lives"[12] – and from 2002 on, included all treatment cases/persons treated because of illegal substance abuse.[13] In the relatively new system of substance abuse treatment (see Kalina in this issue), such monitoring inevitably reflects several confounding factors that create

12/ So-called "first treatment demand" in the EU/EMCDDA terminology.
13/ "All treatment demand."

distortions of the overall picture; the first is the gradual increase in treatment capacity, which is then reflected in the number of first treatment demands. Nevertheless, after 2000, the system stabilized, and since that time the trend can be seen as indicative.

The treatment/services data present an interesting picture of slow, stable increases of first treatment demand related to pervitin abuse and statistically reflects a rather stable situation for all treatment in the period for which data are available. This suggests that there has been both an influx of new patients and the release of other patients who never return to treatment. The latter are most likely drug free or at least lead socially stabilized lives since we cannot find any corresponding increase in either drug related deaths or in the imprisonment of drug users.

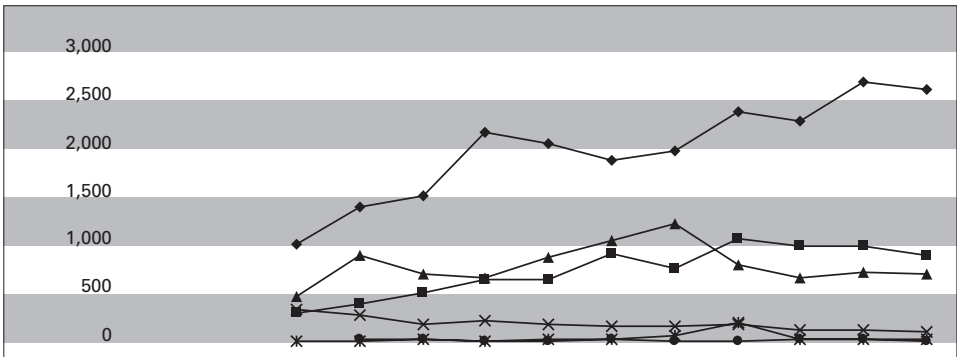
This interpretation is further supported by the increasing age of pervitin users entering treatment for the first time (23.4 years of age in 2005, compared with 20.2 from 1997, an all time low) and of all those who are in treatment for pervitin in a given year (24.5 years of age compared to 23.7 in 2002, when this type of data was available for the first time) (Studničková, Klepetková, Šeblová, Zemanová, 2006). (*Figure 2, Figure 3*.)

This would suggest that older people are gradually recruited into treatment – i.e., that those who performed relatively well and thus had longer drug careers are now entering treatment and that the Czech Republic has a decreasing number of new drug users suitable for treatment who are entering the (problem) drug scene. To determine whether this is the result of a shift in the needs of younger drug users that are not being met by treatment facilities, or simply lower numbers of newcomers, additional research is needed. Nevertheless, other indicators and the unpublished qualitative research (Zábranský, Korčišová, 2005: Focus groups with staff of major Czech street based services, unpublished) support the latter hypothesis.

5 METHAMPHETAMINE MORTALITY

Individuals using illegal drugs frequently – specifically by injection – have significantly lower life expectancy than their nonusing peers; different data sources identified this risk of death to be six to 18 times higher among users compared to the general population when controlled for sex and age (see, e.g. Miller, Kerr, Strathdee, Li, Wood, 2007; EMCDDA, 2003; Zábranský, 2004c). Whereas the estimation of overall mortality rates requires an extensive study using either a prospective design (longitudinal cohort study) or retrospective reviewing and cross-checking of different sources of data, fatal overdoses (i.e., deadly poisonings by illegal drugs) are subject to routine monitoring in the EU utilizing a standardized protocol (EMCDDA, 2002a). In the Czech Republic, monitoring with these standards have covered the entire country since 1998. Czech drug overdose mortality (five cases per million inhabitants) is remarkably low when considered in the EU context (on average 13 per million according to EMCDDA, 2006), or when compared to the results of an Australian study (Degenhardt, Hall, Warner-Smith, 2006), and far lower when compared to results from the U.S. general death registry (Hoyert, Heron, Murhy, Kung, 2006).

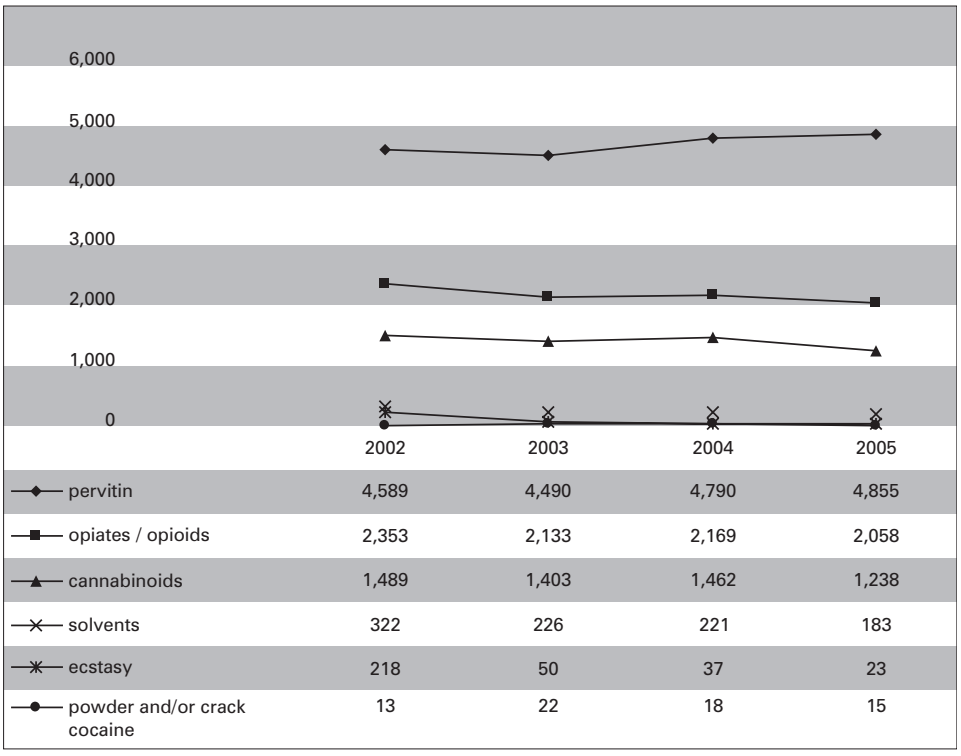
The last year for which the Czech data is available is 2005; in that year, pervitin was the third most frequent ille-



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
pervitin	1,005	1,390	1,510	2,177	2,042	1,880	1,969	2,389	2,281	2,685	2,605
cannabinoids	300	391	512	631	648	912	747	1 070	981	994	893
opiates / opioids	457	882	692	657	869	1,044	1,213	788	656	710	702
solvents	326	274	167	209	166	161	147	171	116	107	88
ecstasy	3	6	12	7	10	23	50	193	24	27	16
powder and/or crack		14	12	7	7	10	5	3	15	13	5

Figure 2

Treatment incidence (persons that received specialized drug-related treatments and/or services (including harm-reduction ones)) for the first time in their lifetime, in the given year) in the Czech Republic 1995–2005



	2002	2003	2004	2005
pervitin	4,589	4,490	4,790	4,855
opiates / opioids	2,353	2,133	2,169	2,058
cannabinoids	1,489	1,403	1,462	1,238
solvents	322	226	221	183
ecstasy	218	50	37	23
powder and/or crack cocaine	13	22	18	15

Figure 3

Treatment prevalence (all persons receiving specialized drug-related treatments and/or services (including harm-reduction ones)) in the Czech Republic 2002–2005 (Mravčík et al., 2006)

gal drug (used alone) causing overdose deaths (14 cases – after 24 opiate poisonings and 18 poisonings with solvents, followed by two ecstasy and one cocaine overdoses) (Mravčík et al, 2006).

Given the extent of pervitin experimentation and the prominent role of the drug in the problem drug use scene, along with the typical stimulant "binge-use" pattern that would enhance the probability of unintentional overdose, one would expect much higher numbers of fatal overdoses with pervitin. The fact that solvents have caused more poisonings than methamphetamine should lead to shifts in the focus of a number of prevention activities in the Czech Republic in the future.

● 6 METHAMPHETAMINE-RELATED CRIMINALITY

Theoretically, three types of drug-related crimes might be identified: (a) primary drug crimes, including drug possession, production, and trafficking as well as a special type of drug crime labeled "inviting into drug use";[14] (b) secondary crimes, that were committed by drug users either under the influence of a drug or in order to obtain the means to purchase the drug, and (c) tertiary crimes, where drug users were victims of crimes (mostly violent offenses and blackmail) because of their vulnerable, marginalized status.

Only primary drug crimes are monitored in accordance with EMCDDA standards.

In 2005, the Czech police initiated official legal action related to illegal drugs (analogous to U.S. "drug arrests") against 2,128 persons. Of those, 1,280 persons (53%) were arrested in relation to pervitin related primary drug crimes. Altogether, 10% of those pervitin related official investigations were qualified by the police officers according to the controversial "possession for own use in amounts bigger than small"[15] paragraph of the penal code (Mravčík et al, 2006).

The analytical reports of the National Police Drug Squad claiming increasing involvement of Russian-speaking organized criminal groups in local pervitin production (see, e.g. National Police Drug Squad [NPDC], 2002) were never confirmed by any major arrest either within the country or abroad. However, isolated information about such attempts by Russian groups was obtained from several interviews with drug users in an extensive qualitative research project (Miovský, Zábranský, 2001).

In the most recent NPDC annual report (2006), the hypothesis about the Russian speaking mafia's involvement has been abandoned; instead, the report (allegedly building on confidential operational data) points to the increasing

14/ In the Czech Republic, drug use is technically not a crime. Primary drug crimes include those detailed in §187 (production, trafficking, smuggling, possession for others); §187a (possession for own use in amount bigger than small); §188 (possession or production of precursors), and §188a (inviting into drug use). For more details on Czech drug laws and history, see Gajdošíková, 2001; Zábranský, 2004a; and Zeman in this issue.

15/ See, for example, Radimecky in this issue or Zabransky, 2004a.

involvement by citizens of states of the former Yugoslavia in the production of and trade in pervitin.

According to the report, the "ex-Yugoslavians" play a major role in facilitating illegal imports of pure ephedrine from several Eastern European sources that is then processed into pervitin and sold both within the country and abroad.

At the same time, the report lobbies heavily for tightening the prescription regimes for decongestant pharmaceuticals containing pseudoephedrine. The NPDC supports these claims by noting that 90% of seized pervitin has been produced using pseudoephedrine extracted directly from this over-the-counter pharmaceutical.

Nevertheless, these arguments fail to acknowledge the fact that since only 3% of all pervitin seizures involved amounts larger than 100 grams, the police do not appear to be investigating cases of sophisticated pervitin production and probably only arrest members of "kitchen labs" who may, in fact, be responsible for far less of the total production share, and who directly consume substantial quantities of what they produce.

Nevertheless, the issue of the export of Czech pervitin abroad has been of increasing interest in neighboring countries. Police refer to the increasing popularity of pervitin in Germany, where the drug is sold under the name "Kristal" or "Czeko" (NPDC, 2006). The author of this paper also interviewed several researchers and care providers in Austria and Slovakia. According to the director of Slovak's largest treatment provider, the influx of pervitin patients into his treatment facility in the capital city is unprecedented and steadily increasing (Okruhlica, personal communication, 2003). Similar to Germany, Austrian experts have reported receiving queries from low threshold service providers asking their advice regarding the appropriate treatment of panic disorders resulting from the sniffing of a white powder locally called "Fliegersalz."[16]

Several cases of medium amounts (tens, and rarely hundreds of grams) of pervitin being smuggled into neighboring countries have been reported in the last few years by the Czech Police (most often to Germany). Frequent reports from police (NPDC, 2002) and drug users themselves (Miovský, Zábranský, 2001) about "traveling pervitin cooks" who were said to have been brought into Germany and elsewhere and paid to prepare the pervitin have never been confirmed. Unlike these uncorroborated claims, all available information suggests that Czech knowledge of pervitin production has in fact been exported to Slovakia (Ministerstvo vnútra SR, 2006).

16/ "Pilot's salt" in German.

7 ESTIMATED PRODUCTION/ CONSUMPTION OF METHAMPHETAMINE, ITS MARKET VALUE, AND SEIZURES

7 / 1 Consumption and its market value

The market value of illegal activities (namely, prostitution, illegal production and smuggling of alcohol and tobacco products, and illegal drugs trade and consumption) is regularly estimated by the Czech Statistical Office. This exercise is rather novel in its methodology and questions have been raised regarding the precision of the inputted data, so to draw any direct conclusions about trends based on it would be inappropriate.

The last of these studies (Vopravil, Český statistický úřad, 2005) included a thorough assessment of the usage patterns of different groups with different drugs (Petroš et al., 2005) based on face-to-face interviews with law enforcement officers of different ranks. It has arrived at the "best estimate" that 3,133 kg of pervitin were consumed in the Czech Republic in 2003 (recalculated for "average wholesale purity of 70% pervitin"); only 166 kg of this amount was consumed in the recreational setting and the remaining amount was used by problem drug users (Mravčík et al., 2005).

The study assumes that no pervitin is imported into the country and reflects the operational data provided by police and customs as well as the results of isolated qualitative research studies (Zábranský, Korčišová, 2005; focus groups with staff of major Czech street-based services, unpublished). Altogether, the study estimates that the pervitin trade accounts for 0.56% of the nation's gross domestic product (GDP).

7 / 2 Seizures

According to data from 2003, a total of 9.7 kg of pervitin were seized in the Czech Republic over the course of a year, 70 grams of which were intended for export (Národní protidrogová centrála Policie ČR, 2004; Mravčík et al., 2004).

Approximately 8 kg of raw ephedrine and ephedrine-containing tablets were seized by law enforcement agencies within the Czech Republic in that year, an amount which would produce 4 kg of pervitin after processing. Altogether, the police seizures represent approximately 0.4% of the estimated production for 2003. This extremely low number is to be expected, especially given the scattered nature of a number of drug-producing "squads" that consume a substantial part of what they produce on their own. Arrests usually yield only several grams of the drug itself and possibly its precursors. In 2003, the reported 9.7 kg of pervitin were seized in 193 police and/or customs seizures – that is, an average of 50 grams per seizure.[17]

17/ Stratified data are available for 2005, when 5.31 kg of pervitin was seized within 209 seizures: 45% of the seizure operations involved 1g of pervitin or less; 31% resulted in seizures between 1 and 5 grams; 13% of the operations seized between 5 and 20 grams, 8% between 20 and 100 grams, and only 3% of the operations seized amount bigger than 100 grams.

When compared to the estimated production amounts, there have been no significant differences in the number and overall size of seizures in previous[18] and subsequent years. In 2002, 4.30 kg of pervitin were seized in 304 seizures: 3.42 kg of pervitin were seized in 201 seizures in 2004, and 5.31 kg were taken in 209 seizures in 2005 (Mravčík et al., 2006). Altogether, the impact of seizures on the pervitin market in Czech Republic is obviously minuscule.

7 / 3 Prices and purities

The previous statement can be further supported by the observed trends in price and purity of pervitin. Just as any other market, illegal drug markets are susceptible to supply and demand changes that influence prices; even if the price elasticity is lower for drugs than for many other consumer goods, it is fairly comparable (Caulkins, Reuter, 1998).

In this light, the stability of the retail prices, combined with a striking stability in the purity of seized samples of the drug might suggest stability of the market. Indeed, ever since systematic monitoring began in 1998, the purity has remained rather stable or has fluctuated slightly around 60% without any upward or downward trend that has survived more than a year. Similarly, the retail (street) price for 1 gram of pervitin has fluctuated between 1,000 and 1,100 CZK.

Whereas the purity data are insensitive to the time factor, the "stability" of prices of "the same purity of pervitin" is actually indicative of a significant decrease in the drug's real price. Whereas the average Czech salary was 10,544 CZK in 1998, in 2005 it was 19,030 CZK (ČSÚ, 2006).[19]

In other words, if price elasticity is indicative of the equilibrium between supply and demand in the illegal drug market, then the Czech Republic faces a long-term oversupply.

8 CONCLUSION

Pervitin – Czech methamphetamine – retains its unique position as the most prevalent problem drug in the Czech Republic, a status it first attained under the repressive communist regime during the early 1970s. The specific nature of this synthetic drug, which does not need any vegetal precursor and is relatively easy to produce, makes total prohibition even less effective than it is with other drugs; the impact of law enforcement activities has had only a negligible effect on the Czech market, which is comprised of large numbers of small-scale producers. The criminalization of possession of all illegal drugs for personal use in 1999 did not change this situation, although the new law's proponents had hoped that it would.

Even if the lifetime prevalence and other indicators of the use of pervitin in the Czech Republic have stabilized or are decreasing, an interesting shift took place in the youngest population and in the population of club and party goers: all of the indicators related to pervitin are substantially higher for females than for males in these younger cohorts. It remains a concern for future research to explain the reasons for this trend. The stabilized situation in prevalence indicators for pervitin in the youth population and – most importantly – the stabilized prevalence of its problem use in the overall population sharply contrast with the steadily increasing trend of lifetime prevalence for cannabis and – to a far lesser extent – ecstasy use in all age groups.

This situation – a kind of natural experiment – represents another challenge to gateway theory, which proposes causal link between the experimentation with and recreational use of more prevalent drugs (cannabis, first of all) and the problem and addictive use of opiates, amphetamine, and cocaine.

The treatment of methamphetamine users in the Czech Republic is poorly documented despite the drug's long history; according to available information, it uses no special approaches when compared to treatment of disorders related to abuse of other illegal drugs. Contrary to the U.S. and other countries, novel approaches such as contingency management have not been used in Czech Republic.

The Czech Republic has a long established tradition of methamphetamine use and abuse amongst different social strata with no obvious concentration in any particular subpopulation. The extent of the pervitin market and the relatively rich available data on it present an opportunity for advanced research in several different disciplines, research that could help address some of the unknown features of methamphetamine, a drug that is on rise worldwide.

18/ The seizure accounting suffered substantial bias until 2002 – namely, double counting of seizures by customs and police, as both agencies wanted to get the credit for the operations they took part in. Since 2002, those double entries have been prevented, and the system reflects the real situation to the highest extent possible.

19/ In other words, one U.S. dollar was 35 CZK in 1998 and 42 CZK in 2000, but only 22 CZK in 2005. The exchange rate has constantly declined since 2000.

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ČLOVĚK, JEHO MOZEK A SVĚT

KNIHY

Miroslav Orel, Věra Facová, Jiří Šimonek

Kniha je pro čtenáře z řad studentů pedagogických oborů, psychologie, sociologie, ošetřovatelství, rehabilitace a pro odborníky zmíněných oborů jedinečnou na českém trhu. Publikace přináší komplexní pohled na lidský mozek a jeho funkce. Podává shrnutí poznatků o stavbě, funkci, vývoji, poruchách a možnostech ovlivnění nejsložitějšího objektu v nám známé části vesmíru – lidského mozku. Vychází z ověřených poznatků i nejnovějších výzkumů v oblasti stavby a funkce mozku. Nabízí propojení pohledu psychologie, biologie a medicíny, teorie a praxe, kliniky a výzkumu. Většina kapitol obsahuje názorné případy z klinické praxe dokládající popisované na názorných příkladech. Je kladen důraz na maximální přehlednost a srozumitelnost textu, který je doprovázen ilustracemi s popisem.

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