Fact Sheet:
Synthetic Cathinones

June 2016

We are the Drug Policy Alliance.

What are "bath salts?"
"Bath salts" is the most common name for substances that fall within a broad category of drugs called "synthetic cathinones," which are related to a naturally-occurring stimulant found in the khat plant. Like many novel psychoactive substances, synthetic cathinones were discovered several decades ago through legitimate laboratory research. In the early 2000s, mephedrone, a synthetic cathinone, was the first to appear as a legal product available in convenience stores and bodegas under names like "White Magic," "M-CAT," or "meow meow."

While mephedrone was more popular in Europe, the synthetic cathinone that became synonymous with "bath salts" in the United States was methylenedioxypyrovalerone (MDPV). In the late 2000s, MDPV was being sold as plant food or cleaning/hygienic products labelled "Not for Human Consumption," under brand names like "Ivory Wave," "Vanilla Sky," and "White Lightning."

Like other novel psychoactive substances, producers of synthetic cathinones sought to meet the demand for banned drugs, particularly MDMA, but also methamphetamine, cocaine, and other stimulants.

Since their effects are sometimes reported to be similar to other psychostimulants, and because they are cheaper to produce, synthetic cathinones are often found in drugs sold as "molly" meant to be MDMA. MDPV was banned in 2011 in the U.S. followed by many other synthetic cathinones in 2012. While this ban prevented synthetic cathinones from being openly sold at retailers, it simply shifted supply to the internet and individual sellers.

Are "bath salts" the same as "molly?"
No, although products sold as "molly" are often adulterated with "bath salts." Molly is a commonly-used slang term for MDMA, a drug associated with treatment of PTSD and other therapies as well as used recreationally at festivals, concerts and clubs. The term "bath salts" became common during coverage of the novel psychoactive substance, MDPV, a synthetic cathinone that was legally available until 2011, and now refers to the class of cathinone drugs generally.

Slang terms like "bath salts" and "molly" create an illusion that the words refer to only one drug. But buying "molly" does not always mean you're getting MDMA! If your "molly" has "bath salts" in it, it could refer to any number of different synthetic cathinone drugs, some of which are riskier than others. People who are seeking "molly" (MDMA) often end up with something other than what they intended.[i]

Without legal regulation or access to drug checking services, it's impossible for people who to know what they're getting, especially when newer and lesser known drugs continue to emerge as soon as their predecessors are banned. Since these drugs are commonly associated with the nightlife and festival community, event producers and club owners should embrace harm reduction practices like onsite drug checking and drug education. DPA's #SaferPartying campaign aims to make that happen.[ii]

How did "bath salts" become popular?
One of the earliest synthetic cathinones to become a popular recreational drug was mephedrone in the UK. In the mid-2000s mephedrone was legal and cheap to produce, import, and sell. Mephedrone's rise in popularity was due to its availability and similar effects to MDMA.

As is often the case with NPS, the emergence of a market for synthetic cathinones over the last decade can be tied to meeting the demands for banned drugs, in this case methamphetamine, MDMA and cocaine. Standard drug tests for cocaine, MDMA and other amphetamines will not trigger a positive result for synthetic cathinones. This can appeal to active military personnel, professional athletes, people on parole, people in treatment for substance misuse, and anyone under surveillance for drug use. People may use synthetic cathinones because they can more easily avoid detection, rather than due to preference over other substances. People may also use synthetic cathinones accidentally, when something sold as "molly" contains synthetic cathinones rather than MDMA.[i]

What is "flakka?"

α-Pyrrolidinopentiophenone (or alpha-PVP), more commonly known as "flakka," is part of the broad category of drugs called "synthetic cathinones." Alpha-PVP first emerged in specific regions of the United States, receiving a lot of media coverage, particularly in Florida.

Like other synthetic cathinones, alpha-PVP has stimulant effects. There is almost no research available about alpha-PVP outside of experiments in animals, and the available human reports come largely from people who show up to emergency rooms with adverse effects, like agitation and aggression, violence and hallucinations, which are effectively treated with tranquilizers.[iv]

In early 2016, harsh law enforcement crackdowns that, according to media reports, successfully rid Florida's streets of the "flakka epidemic" failed to address the underlying reason for alpha-PVP's emergence in the first place: drug prohibition, which creates an environment where a cheap drug with a powerful high that's not detectable on a drug test can meet the demand for already-banned drugs. Identifying and banning the drug associated with "flakka" will result in another drug that fills these qualities, and will present the same issue as alpha-pvp.

What are the effects of synthetic cathinones?

Synthetic cathinones are considered "euphoric stimulants," meaning they have a short acting duration of physical and psychological effects similar to stimulants like amphetamine. These can include increased energy and alertness, elevated mood, and sociability,[iii] but also can include anxiety, paranoia, and diminished appetite.[iv] Methylone and mephedrone were among the first discovered synthetic cathinones,[v] so their effects have been more thoroughly researched in humans.[vi] Much less is known about newer substances, like MDPV and alpha-PVP, which have been brought to market once known substances are banned.

Despite very similar chemical structures, there can be significant variation in the effects, methods of ingestion, and dosage, which can lead to differences in duration and relative intensity of effects. There are several resources for educating people who choose to use these drugs like DanceSafe,[vii] TripSit,[viii] and Erowid.[ix]

Synthetic cathinones are rarely sought out for use on their own. They are often unknowingly combined with other drugs and sold as "molly" or "bath salts" and often used by people drinking alcohol or using other drugs. As the effects of synthetic cathinones are not well understood, more research is needed to fill these knowledge gaps, which should also include interaction with alcohol, prescription medication, and other substances.

How risky are synthetic cathinones compared to other drugs?

Synthetic cathinones are psychostimulants whose risks are similar to those of cocaine and amphetamines, with side effects like increased heart rate, confusion and paranoia.[x] Like other novel psychoactive substances and illegal drugs in general, people who are taking them often do not know what they are taking, whether they are using the right dose, or what greater risks come with combining other drugs.

A rare and uncommon side-effect of psychostimulants like synthetic cathinones known as "excited delirium," combines signs of delirium, like anxiety, hallucinations and disorientation, along with elevated body temperature, insensitivity to pain, and hyper-aggression.[xi] The media often reports these instances of bizarre behavior by someone who has taken a synthetic cathinone as if it is a common scenario, which it is not.[xii]

Synthetic cathinones have been tied to deaths either as a direct cause,[xiii] or indirectly when people have committed violent acts against others in a state of excited delirium.[xiv] Again, cases of excited delirium are

extremely rare[xv] and can often involve other factors like combining with other drugs, driving under the influence, or underlying mental health conditions.[xvi]

How many people are using synthetic cathinones?
Despite widespread media attention throughout the country over the past few years, relatively few people are using synthetic cathinones compared to other drugs. Calls to poison control centers peaked in 2012 with 2,697,[xvii] but continued to decline in each subsequent year (998 in 2013, 587 in 2014, and 522 in 2015). Though data from emergency room visits rose sharply in the early 2010s,[xxviii] the most recent national numbers reached over 20,000 (from 2011, compared to 2.5 million ER visits in 2011 from all drugs). The Monitoring the Future survey of 8th-12th graders showed no more than 1% of 8th graders had tried synthetic cathinones in the past year for 2012-2015, less than 1% of 10th graders, and around 1% of 12th graders.[xix] Based on overall trends, synthetic cathinones actually do not appear to be of much interest to youth in the United States.[xx]

Use of synthetic cathinones is often linked to nightlife settings,[xxi] but even among a sample of 1,740 adults (average age 26) at nightlife venues in New York City, only 1.1% reported using mephedrone in within the past year.[xxii]

What is hard to measure, but undoubtedly a factor, is how many people may be unknowingly using synthetic cathinones when they are substituted for or cut into "molly."

Are synthetic cathinones addictive?
Given the lack of scientific evidence, the addictive potential of synthetic cathinones is inconclusive. The most credible information available are limited to case reports and anecdotal accounts of compulsive use.[xviii] There are even some preliminary reports suggesting that certain synthetic cathinones are less addictive than other substances.[xxiv]

From a pop culture context, there have been some reports of people addicted to these drugs. For example, MTV's "I'm addicted to molly" and VICE Stories', "I dated an MCAT addict for two high months" (MCAT = 4-Methylmethcathinone, a synthetic cathinone), portray two cases that place emphasis on a tale of addiction. While these clearly depict real-life narratives, they likely represent extremes.

Are synthetic cathinones legal?
When synthetic cathinone products began to appear in convenience stores in the mid-2000s, they contained substances that were not specifically banned by state or federal drug laws. But by the end of the decade, a few states passed laws to ban their sale, and in 2011 the DEA used emergency protocols to temporarily schedule some of the substances found in synthetic cathinone products. In 2012, President Obama signed the Synthetic Drug Abuse Prevention Act, permanently placing several different classes of psychoactive substances, including many synthetic cathinones, into Schedule I of the Controlled Substances Act (CSA) – the most restrictive classification possible.[xxv]

Each state is currently using various administration actions, prosecution strategies, and regulations for product labeling and branding to either quickly ban individual substances or criminalize sales. Most states have also enacted criminal and civil penalties for sale of products (and many others have pending legislation) that falsely claim to be "not for human consumption."[xxvi] Recently, states like New York, Virginia and several others have pushed for new laws that broaden the chemical definitions meant to be outlined in Schedule I as well as call for harsher penalties for sale of synthetic cathinone products.

However, drug prohibition laws essentially "mark the battle lines," as manufacturers of synthetic cathinones can make small changes to the chemical formulas to skirt these laws, producing newer synthetic cathinones that have not yet been scheduled. Instead of further criminalization, alternative approaches are needed to reduce accidental deaths related to drug use, improve public health outcomes, care for vulnerable populations, and protect young people.

What's a harm reduction approach to the use of synthetic cathinones?
The importance of educating people on the actual effects of synthetic cathinones and other novel psychoactive substances cannot be overstated. First and foremost, people who choose to use drugs should know what they're taking. Expanding access to drug checking will allow for this, which is one of the goals of DPA's #SaferPartying campaign.[xxvii] In the U.S., organizations like DanceSafe[xxviii] and Bunk Police[xxix] sell drug checking kits online and at music festivals and concerts when permitted, which allow people to test for possible adulterants.

In the U.S., while most states and the national focus remains on prohibiting synthetic cathinones and other NPS, this approach actually drives the creation of riskier and less well known substances. Prohibition also drives mass incarceration and the many other harms association with arrest and imprisonment.
In 2013, New Zealand took a new approach to the market for synthetic drugs by creating regulated restrictions for licensed importation, manufacture, and commerce of synthetic cathinones and other NPS. In this type of regulated system, there's an incentive for producers to develop drugs that have been tested for safety. Meanwhile, advertising and sale to minors is prohibited.

Education about the potential risks, precautionary measures, and alternatives to prohibition to reduce harm must be prioritized over zero-tolerance policies and criminalization.

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